



NEXCOM International Co., Ltd.

Industrial Computing Solutions

COM Express Type 6

ICEK 668-T6 (ICES 668 Series and ICEB 8060)

Starter Kit User Manual

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Preface

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Acknowledgements

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Regulatory Compliance Statements

This section provides the FCC compliance statement for Class B devices and describes how to keep the system CE compliant.

Declaration of Conformity

FCC

This equipment has been tested and verified to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area (domestic environment) is likely to cause harmful interference, in which case the user will be required to correct the interference (take adequate measures) at their own expense.

CE

The product(s) described in this manual complies with all applicable European Union (CE) directives if it has a CE marking. For computer systems to remain CE compliant, only CE-compliant parts may be used. Maintaining CE compliance also requires proper cable and cabling techniques.

RoHS Compliance



NEXCOM RoHS Environmental Policy and Status Update

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RoHS restricts the use of Lead (Pb) < 0.1% or 1,000ppm, Mercury (Hg) < 0.1% or 1,000ppm, Cadmium (Cd) < 0.01% or 100ppm, Hexavalent Chromium (Cr6+) < 0.1% or 1,000ppm, Polybrominated biphenyls (PBB) < 0.1% or 1,000ppm, and Polybrominated diphenyl Ethers (PBDE) < 0.1% or 1,000ppm.

In order to meet the RoHS compliant directives, NEXCOM has established an engineering and manufacturing task force to implement the introduction of green products. The task force will ensure that we follow the standard NEXCOM development procedure and that all the new RoHS components and new manufacturing processes maintain the highest industry quality levels for which NEXCOM are renowned.

The model selection criteria will be based on market demand. Vendors and suppliers will ensure that all designed components will be RoHS compliant.

How to recognize NEXCOM RoHS Products?

For existing products where there are non-RoHS and RoHS versions, the suffix "(LF)" will be added to the compliant product name.

All new product models launched after January 2006 will be RoHS compliant. They will use the usual NEXCOM naming convention.

Warranty and RMA

NEXCOM Warranty Period

NEXCOM manufactures products that are new or equivalent to new in accordance with industry standard. NEXCOM warrants that products will be free from defect in material and workmanship for 2 years, beginning on the date of invoice by NEXCOM. HCP series products (Blade Server) which are manufactured by NEXCOM are covered by a three year warranty period.

NEXCOM Return Merchandise Authorization (RMA)

- Customers shall enclose the “NEXCOM RMA Service Form” with the returned packages.
- Customers must collect all the information about the problems encountered and note anything abnormal or, print out any on-screen messages, and describe the problems on the “NEXCOM RMA Service Form” for the RMA number apply process.
- Customers can send back the faulty products with or without accessories (manuals, cable, etc.) and any components from the card, such as CPU and RAM. If the components were suspected as part of the problems, please note clearly which components are included. Otherwise, NEXCOM is not responsible for the devices/parts.
- Customers are responsible for the safe packaging of defective products, making sure it is durable enough to be resistant against further damage and deterioration during transportation. In case of damages occurred during transportation, the repair is treated as “Out of Warranty.”
- Any products returned by NEXCOM to other locations besides the customers’ site will bear an extra charge and will be billed to the customer.

Repair Service Charges for Out-of-Warranty Products

NEXCOM will charge for out-of-warranty products in two categories, one is basic diagnostic fee and another is component (product) fee.

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NEXCOM will charge for out-of-warranty products in two categories, one is basic diagnostic fee and another is component (product) fee.

System Level

- Component fee: NEXCOM will only charge for main components such as SMD chip, BGA chip, etc. Passive components will be repaired for free, ex: resistor, capacitor.
- Items will be replaced with NEXCOM products if the original one cannot be repaired. Ex: motherboard, power supply, etc.
- Replace with 3rd party products if needed.
- If RMA goods can not be repaired, NEXCOM will return it to the customer without any charge.

Board Level

- Component fee: NEXCOM will only charge for main components, such as SMD chip, BGA chip, etc. Passive components will be repaired for free, ex: resistors, capacitors.
- If RMA goods can not be repaired, NEXCOM will return it to the customer without any charge.

Warnings

Read and adhere to all warnings, cautions, and notices in this guide and the documentation supplied with the chassis, power supply, and accessory modules. If the instructions for the chassis and power supply are inconsistent with these instructions or the instructions for accessory modules, contact the supplier to find out how you can ensure that your computer meets safety and regulatory requirements.

Cautions

Electrostatic discharge (ESD) can damage system components. Do the described procedures only at an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the computer chassis.

Safety Information

Before installing and using the device, note the following precautions:

- Read all instructions carefully.
- Do not place the unit on an unstable surface, cart, or stand.
- Follow all warnings and cautions in this manual.
- When replacing parts, ensure that your service technician uses parts specified by the manufacturer.
- Avoid using the system near water, in direct sunlight, or near a heating device.
- The load of the system unit does not solely rely for support from the rackmounts located on the sides. Firm support from the bottom is highly necessary in order to provide balance stability.
- The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Installation Recommendations

Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.

Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:

- A Philips screwdriver
- A flat-tipped screwdriver
- A grounding strap
- An anti-static pad

Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nose pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.

Safety Precautions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a stable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection to protect the equipment from overheating. DO NOT COVER THE OPENINGS.
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Place the power cord in a way so that people will not step on it. Do not place anything on top of the power cord. Use a power cord that has been approved for use with the product and that it matches the voltage and current marked on the product's electrical range label. The voltage and current rating of the cord must be greater than the voltage and current rating marked on the product.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
 - a. The power cord or plug is damaged.
 - b. Liquid has penetrated into the equipment.
 - c. The equipment has been exposed to moisture.
 - d. The equipment does not work well, or you cannot get it to work according to the user's manual.
 - e. The equipment has been dropped and damaged.
 - f. The equipment has obvious signs of breakage.
15. Do not place heavy objects on the equipment.
16. The unit uses a three-wire ground cable which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If your outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.
17. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

Technical Support and Assistance

1. For the most updated information of NEXCOM products, visit NEXCOM's website at www.nexcom.com.
2. For technical issues that require contacting our technical support team or sales representative, please have the following information ready before calling:
 - Product name and serial number
 - Detailed information of the peripheral devices
 - Detailed information of the installed software (operating system, version, application software, etc.)
 - A complete description of the problem
 - The exact wordings of the error messages

Warning!

1. Handling the unit: carry the unit with both hands and handle it with care.
2. Maintenance: to keep the unit clean, use only approved cleaning products or clean with a dry cloth.
3. CompactFlash: Turn off the unit's power before inserting or removing a CompactFlash storage card.

Conventions Used in this Manual



Warning:

Information about certain situations, which if not observed, can cause personal injury. This will prevent injury to yourself when performing a task.



Caution:

Information to avoid damaging components or losing data.



Note:

Provides additional information to complete a task easily.

Global Service Contact Information

Headquarters

NEXCOM International Co., Ltd.

15F, No. 920, Chung-Cheng Rd.,
ZhongHe District, New Taipei City, 23586,
Taiwan, R.O.C.

Tel: +886-2-8226-7786

Fax: +886-2-8226-7782

www.nexcom.com

America

USA

NEXCOM USA

2883 Bayview Drive, Fremont CA 94538,
USA

Tel: +1-510-656-2248

Fax: +1-510-656-2158

Email: sales@nexcom.com

www.nexcom.com

Asia

Taiwan

Central Taiwan Office

16F, No.250, Sec. 2, Chongde Rd.,
Beitun Dist., Taichung City 406, R.O.C.

Tel: +886-4-2249-1179

Fax: +886-4-2249-1172

Email: sales@nexcom.com.tw

www.nexcom.com.tw

Japan

NEXCOM Japan

9F, Tamachi Hara Bldg., 4-11-5, Shiba Minato-ku,
Tokyo, 108-0014, Japan

Tel: +81-3-5419-7830

Fax: +81-3-5419-7832

Email: sales@nexcom-jp.com

www.nexcom-jp.com

China

NEXCOM China

2F, Block 4, Venus Plaza, Bldg. 21,
ZhongGuanCun Software Park, No. 8,
Dongbeiwang West Rd., Haidian District,
Beijing, 100193, China

Tel: +86-10-8282-5880

Fax: +86-10-8282-5955

Email: sales@nexcom.cn

www.nexcom.cn

Shanghai Office

Room 1505, Greenland He Chuang Bldg.,
No. 450 Caoyang Rd.,
Shanghai, 200062, China

Tel: +86-21-6150-8008

Fax: +86-21-3251-6358

Email: sales@nexcom.cn

www.nexcom.cn

Nanjing Office

Hall C, Block 17, Tian Xing Cui Lang Bldg.,
No. 49 Yunnan North Rd.,
Nanjing, 210018, China

Tel: +86-25-8315-3486

Fax: +86-25-8315-3489

Email: sales@nexcom.cn

www.nexcom.cn

Shenzhen Office

Western Room 708, Block 210,
Tairan Industry & Trading Place,
Futian Area, Shenzhen,
518040, China

Tel: +86-755-8332-7203

Fax: +86-755-8332-7213

Email: sales@nexcom.cn

www.nexcom.cn

Wuhan Office

1-C 1804/ 1805, Mingze Liwan,
No. 519 South Luoshi Rd.,
Hongshan District,
Wuhan, 430070, China

Tel: +86-27-8722-7400

Fax: +86-27-8722-7400

Email: sales@nexcom.cn

www.nexcom.cn

Chengdu Office

9F, Shuxiangxie, Xuefu Garden,
No.12 Section 1, South Yihuan Rd.,
Chengdu, 610061, China
Tel: +86-28-8523-0186
Fax: +86-28-8523-0186
Email: sales@nexcom.cn
www.nexcom.cn

Europe

France

NEXCOM France

La Grande Arche-Paroi Nord,
92044 Paris La Défense, France
Tel: +33 (0) 1 40 90 33 35
Fax: +33 (0) 1 40 90 31 01
Email: sales.fr@nexcom.eu
www.nexcom.eu

Germany

NEXCOM GmbH
Leopoldstraße Business Centre,
Leopoldstraße 244,
80807 Munich, Germany
Tel: +49-89-208039-278
Fax: +49-89-208039-279
Email: sales.de@nexcom.eu
www.nexcom.eu

Italy

NEXCOM ITALIA S.r.l
Via Gaudenzio Ferrari 29,
21047 Saronno (VA), Italia
Tel: +39 02 9628 0333
Fax: +39 02 9286 9215
Email: nexcomitalia@nexcom.eu
www.nexcomitalia.it

United Kingdom

NEXCOM EUROPE

10 Vincent Avenue,
Crownhill Business Centre,
Milton Keynes, Buckinghamshire MK8 0AB,
United Kingdom
Tel: +44-1908-267121
Fax: +44-1908-262042
Email: sales.uk@nexcom.eu
www.nexcom.eu



Package Contents

Before continuing, verify that the ICEK 668-T6 package that you received is complete. Your package should have all the items listed in the following table.

Item	Description	Qty
1	ICES 668	1
2	ICEB 8060	1
3	Built-in 10.4" LED LCD Panel	1
4	Built-in 100W or 150W Flex-ATX power supply for AC 110V/220V input	1
5	NEXCOM USB card containing ICEK 668-T6 Design-in documentation	1



Ordering Information

The following information below provides ordering information for ICEK 668-T6.

ICES 668-3610ME (P/N: 10K00066806X0)

COM Express Type 6 Basic module, 3rd generation Intel® Core™ i5-3610ME processor (2x 2.7GHz, 3M Cache, 35W) paired with mobile Intel® QM77 express chipset, ECC DDR3/2x SO-DIMMs

ICES 668-3615QE (P/N: 10K00066805X0)

COM Express Type 6 Basic module, 3rd generation Intel® Core™ i7-3615QE processor (4x 2.3GHz, 6M Cache, 45W) paired with mobile Intel® QM77 express chipset, ECC DDR3/2x SO-DIMMs

ICES 668-3555LE (P/N: 10K00066804X0)

COM Express Type 6 Basic module, 3rd generation Intel® Core™ i7-3555LE processor (2x 2.5GHz, 4M Cache, 25W) paired with mobile Intel® QM77 express chipset, ECC DDR3/2x SO-DIMMs

ICES 668-3517UE (P/N: 10K00066803X0)

COM Express Type 6 Basic module, 3rd generation Intel® Core™ i7-3517UE processor (2x 1.7GHz, 4M Cache, 17W), paired with mobile Intel® QM77 express chipset, ECC DDR3/2x SO-DIMMs

ICES 668-3217UE (P/N: 10K00066801X0)

COM Express Type 6 Basic module, 3rd generation Intel® Core™ i3-3217UE processor (2x 1.6Ghz, 3M Cache, 17W), paired with mobile Intel® QM77 express chipset, ECC DDR3/2x SO-DIMMs

ICEK 668-T6 (Subject to project registration)

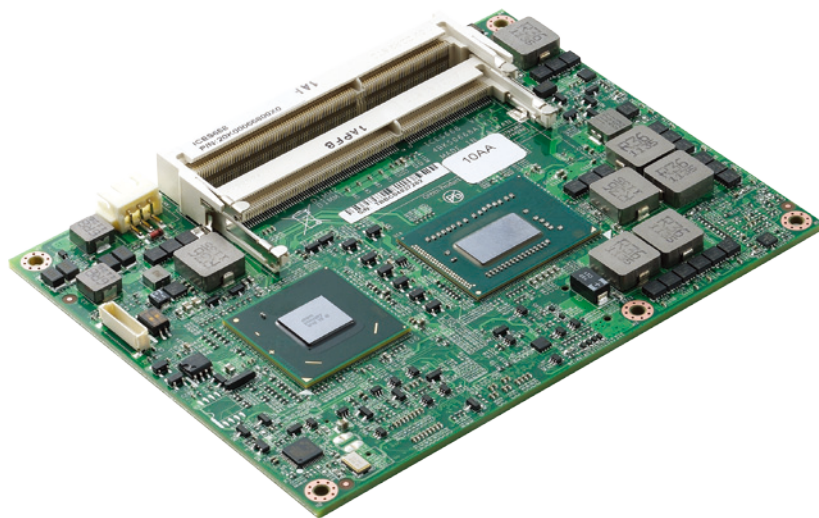
ICES 668-3610ME with mobile Intel® QM77 express chipset, built-in min. ECC-DDR3/ 4GB system memory onboard installed on ICEB 8060 type-6 carrier MB/ ATX, pre-installed trial version of Microsoft Windows® 7 onto bootable 8GB CFast SSD for 10.4" LCD panel and Flex ATX PSU AC 110/220V input

ICEB 8060 (P/N:10KB0806000X0) RoHS Compliant

COM Express Type 6, COM.0 Rev. 2.0 Evaluation CRB, 3DDI/ VGA/ LVDS/ 4USB3.0/ 8USB2.0/ 6COM/ 2GbE/ 5.1 HD, SPDIF/ 2SATA3.0/ mSATA/ CFast/ PCIe16/ PCIe4/ PCIe1/ mPCIe, ATX input

Chapter 1: Product Introduction

Overview - ICES 668



Key Features

- PICMG COM.0 Rev. 2.0 Type 6 Basic module (95mm x 125mm)
- Support 3rd generation Intel® Core™ i7/ i5/ i3 processor family with ECC
- Mobile Intel® QM77 Express Chipset
- Dual DDR3 1333/1600MHz SO-DIMM sockets for up to 16GB ECC memory
- 3x independent displays: VGA, 18/24-bit LVDS, DVI, HDMI, DisplayPort
- 1x PCIe x16, 7x PCIe x1, 4x USB 3.0, 8x USB 2.0, 2x SATA 3.0, 2x SATA 2.0 and GbE

Hardware Specifications

CPU Support

- Support Intel® BGA 1023, 3rd generation Intel® Core™ processor
 - Intel® Core™ i7 3615QE (4C/ 6M cache/ 2.3GHz/ Max. TDP 45W)
 - Intel® Core™ i7 3555LE (2C/ 4M cache/ 2.5GHz/ Max. TDP 25W)
 - Intel® Core™ i7 3517UE (2C/ 4M cache/ 1.7GHz/ Max. TDP 17W)
 - Intel® Core™ i3 3217UE (2C/ 3M cache/ 1.6GHz/ Max. TDP 17W)
 - Intel® Core™ i5 3610ME (2C/ 3M cache/ 2.7GHz/ Max. TDP 35W)

Main Memory

- Dual DDR3/ SO-DIMMs, support 1333/1600MHz ECC system memory up to 16GB

Platform Control Hub

- Intel® QM77 PCH chipset

BIOS

- AMI System UEFI BIOS
- Plug and play support
- Advanced power management and advanced configuration & power interface support

Display

- Intel® HD graphics with DX11 support up to triple independent displays
- One PCI Express x16 Lane down to the carried board
- Supports VGA and single/dual channel s 18/24 bit LVDS interface
- 3x DDI (Digital Display Interface) supports HDMI/ DVI, DisplayPort and SVDO interfaces

Audio

- HD audio interface

On-board LAN

- Intel® 82579LM Gigabit Ethernet, support iAMT 8.0
- Support PXE boot from LAN, wake on LAN function
- Signals down to I/O board

COM Express Connector

- AB
VGA/ LVDS/ 8x USB 2.0 / 2x Serial Port / HD Audio/ 4x SATA/ GbE/ GPIO/ LPC bus, 1x PCIe X4/ 3x PCIe X1/ SMBus (I2C)/ SPI BIOS /SPK out
- CD
PCIe x16/ 3x DDI/ 4x USB 3.0

Power Requirements

- +12V, +5VSB, +3.3V RTC power

Dimensions

- 95mm (W) x 125mm (L)

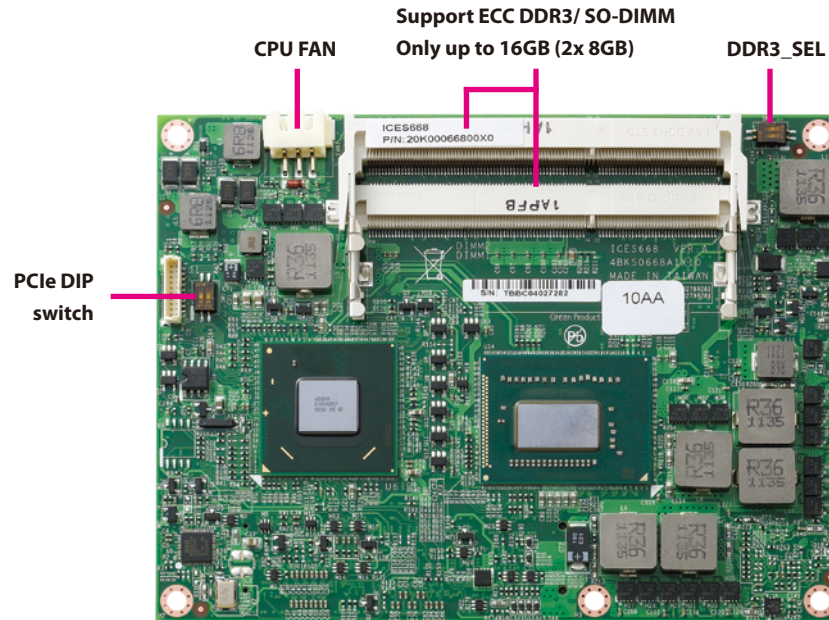
Environment

- Board level operating temperatures: 0°C to 60°C
- Storage temperatures: -20°C to 80°C
- Relative humidity:
10% to 90% (operating, non-condensing)
5% to 95% (non-operating, non-condensing)

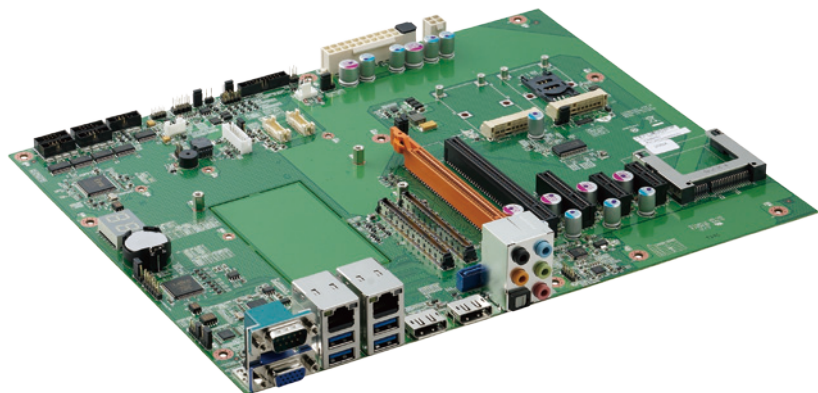
Certifications

- Meet CE
- FCC Class A

Knowing Your ICES 668



Overview - ICEB 8060



Key Features

- COM Express COM.0, Rev 2.0 Evaluation CRB, ATX form-factor
- Support Type 6 pin-out, COMe Extended/ Basic/ Compact Module
- Display: 3x DDI (2DP/HDMI), VGA & dual channels 18/24-bit LVDS
- 4x USB 3.0/ 2x SATA3.0, PCIe Gen 3.0, Bootable CFast or mini-SATA
- PCIe x 16, DDI (PClex16), PCIe x4, PCIe x1 and mini-PCIe for Wi-Fi
- VGA/RS232/422/485/ 5COM, Dual GbE/12USB/ 5.1, S/PDIF

Hardware Specifications

Form Factor

- ATX Carrier MB, dimension: 305mm x 244mm [12" x 9.6"]
- COM Express Evaluation CRB: PICMB COM Express board-to-board interconnectors, type 6 pin-put, female, 8mm stack-up height, COM.0 Rev. 2.0

NEXCOM Computer-on-Modules Support List

- Basic Size (125x 95mm) : ICES 668

Expansion

- 1x PCIe x16 slot, support PEG interfaces
- 1x DDI (SDVO/ HDMI/ DP by orange color PCIe x16 slot)
- 1x PCIe x4 slot, optional 4x PCIe x1 signals
- 1x PCIe x1 slot and 1x mini-PCIe slot for Wi-Fi with SIM tray

Graphic Interfaces

- Graphic Chip: from Type 6 pin-out, COM Express module
- CRT: support analog VGA with DB15 connector on the I/O edge
- LVDS: dual channels 18/24-bit LVDS connector (dual DF-13-20P)
- DDI (in PCIe x16): optional EBK-A2HDMI riser card for HDMI or DP

Super I/O

- nuvoton, NCT6106D

I/O Interface

- Serial COM: 6 ports
 - 1x edge DB9 connector to support RS232/ 422/ 485 (+5/ +12V by Ring)
 - 5x internal box-header 2.0 pitch to support RS232
- USB: 12 ports 4xUSB 3.0 and 8x USB2.0 ports
 - 4x USB 3.0/ 4x USB 2.0 ports by stack Type A on edge
 - 3x USB 2.0 by 4-pins JST2.0mm JST connector,
 - 1x internal USB 2.0 to mini-PCIe slot for external wi-fi module
- SATA: 4 ports
 - 2x SATA 3.0 ports
 - 1x mini-SATA by mini-PCIe slot for half-/ full size mini-SATA/ SSD
 - 1x CFAST slot for CFAST/ SATA 2.0
- PS/2: internal 2x 4-pins header for Keyboard/Mouse
- GPIO ports: 2x + 8x pins GPIO signals from COMe (default 5V TTL/ option 3.3V)

Network

- ETH0: LAN port Connected from COMe CPU module (ICES668)
- ETH0: Support 1x RJ45/ GbE LAN port on the edge I/O
- ETH1: Support 2nd. RJ45/ GbE LAN port by Intel 82574L on the edge I/O
- ETH0 and ETH1 support Boot from LAN (PXE)
- ETH0 and ETH1 support Wake-on-LAN (when +5Vsb power available)

Audio

- HD Audio AL886 with 5.1 channels
- Support external S/PDIF interface
- Support internal pin-header for L/R speaker-out 2W/ 4 Ohm
- Onboard buzzer

EEPROM

- 1x 2K EEPROM to record PCI Express Lane configuration
- ATMEL AT24C32 (or C02) and address 0x57 or (0xAE)

Watchdog Timer

- Watchdog timeout can be programmed by Software from 1 second to 255 seconds and from 1 minute to 255 minutes (tolerance 15% temperature 25°C)

On-board RTC

- On-chip RTC with battery BR2032

Power Input

- Standard ATX 24 pins and AUX 4-pins with 12V

Dimensions

- ATX form factor, 305x 244mm (Lx W, 12"x9.6")

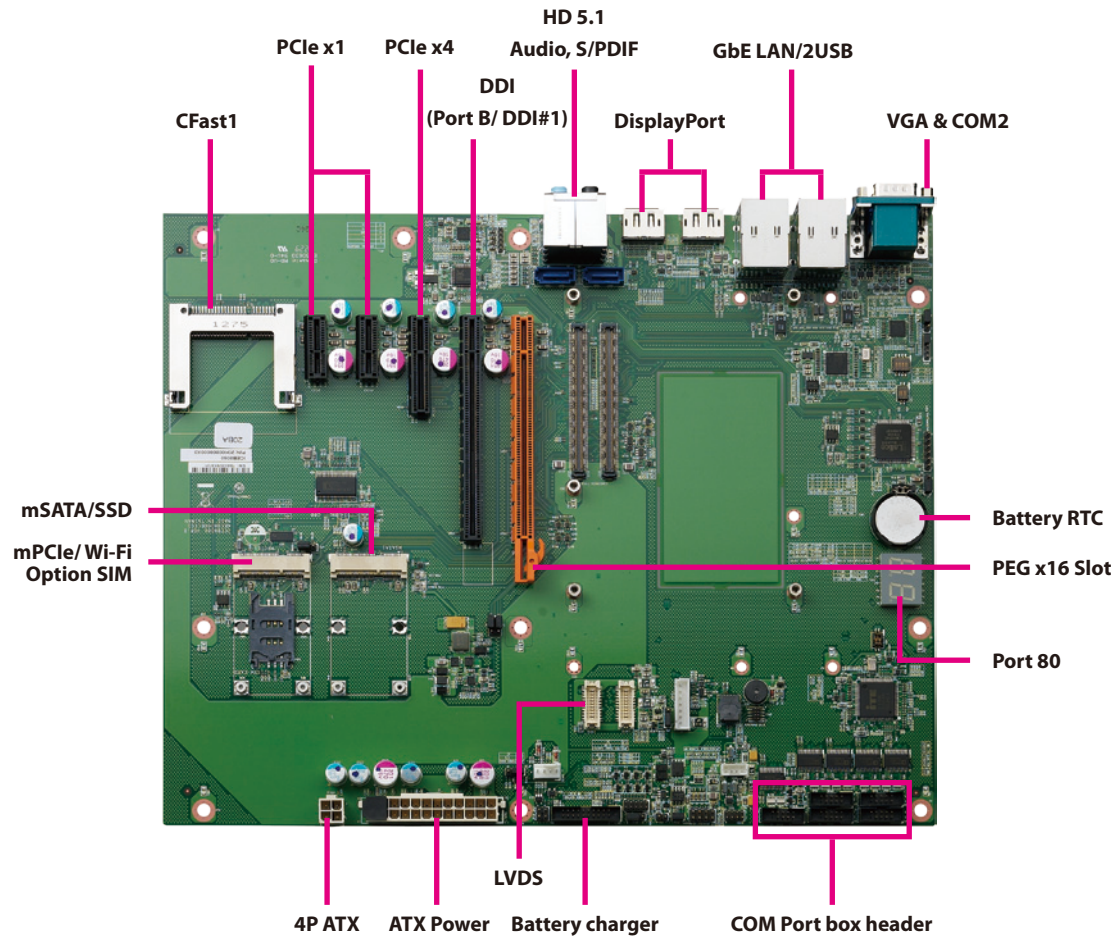
Environment

- Operating temperatures: -20°C to 60°C
- Storage temperature: -40°C to 85°C
- Relative humidity: Operating 10% to 90%, non-condensing

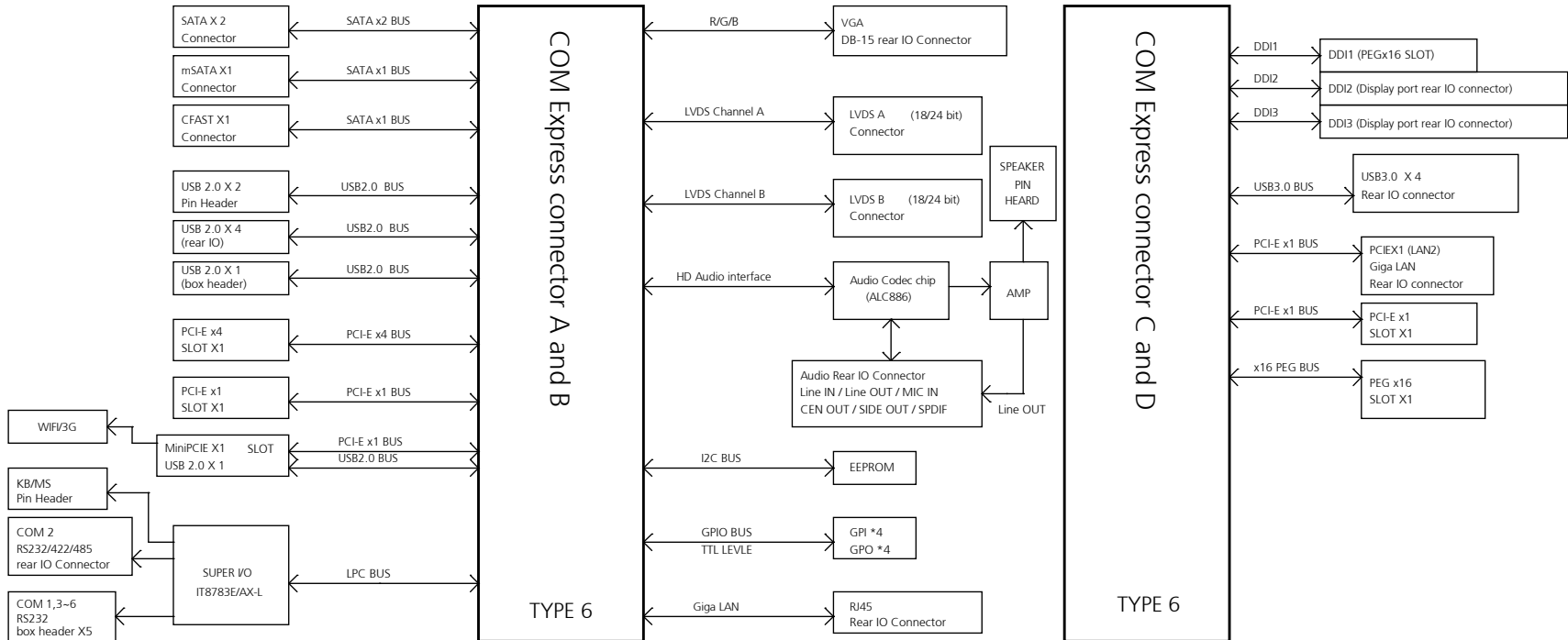
Certifications

- CE approval
- FCC Class A

Knowing Your ICEB 8060



ICEB 8060



Chapter 2: Jumpers and Connectors

This chapter describes how to set the jumpers and connectors on the ICES 668 and ICEB 8060 motherboard.

Before You Begin

- Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.
- Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:
 - A Philips screwdriver
 - A flat-tipped screwdriver
 - A set of jewelers screwdrivers
 - A grounding strap
 - An anti-static pad
- Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nosed pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.
- Before working on internal components, make sure that the power is off. Ground yourself before touching any internal components, by touching a metal object. Static electricity can damage many of the electronic components. Humid environments tend to have less static electricity than

dry environments. A grounding strap is warranted whenever danger of static electricity exists.

Precautions

Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on computers that are still connected to a power supply can be extremely dangerous.

Follow the guidelines below to avoid damage to your computer or yourself:

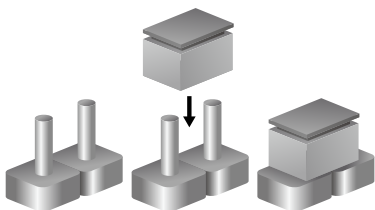
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Don't flex or stress the circuit board.
- Leave all components inside the static-proof packaging that they shipped with until they are ready for installation.
- Use correct screws and do not over tighten screws.

Jumper Settings

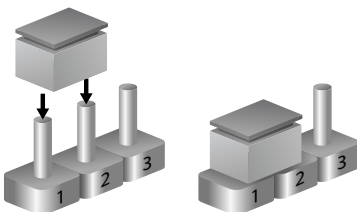
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is open.

Refer to the illustrations below for examples of what the 2-pin and 3-pin jumpers look like when they are short (on) and open (off).

Two-Pin Jumpers: Open (Left) and Short (Right)

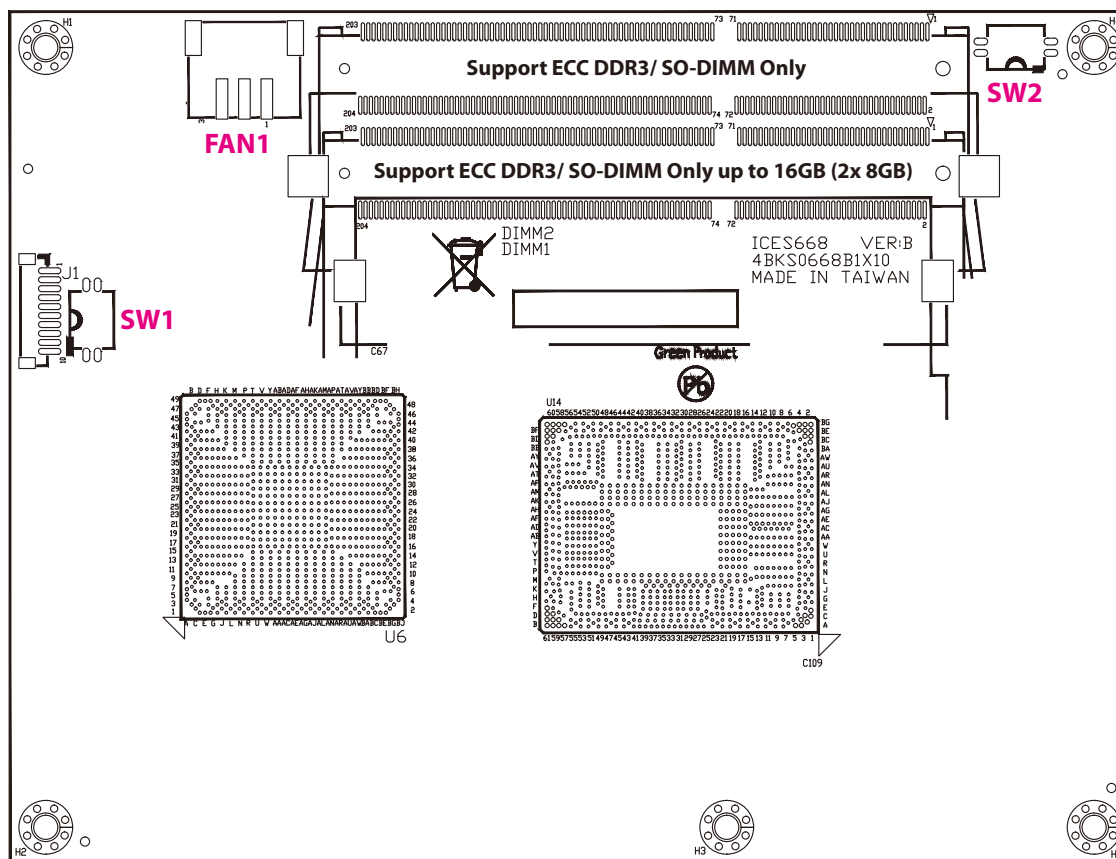


Three-Pin Jumpers: Pins 1 and 2 are Short



Locations of the Jumpers and Connectors for ICES 668

The figure below shows the location of the jumpers and connectors for ICES 668.



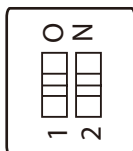
Connector Pin Definitions

Internal Connectors

DDR3_SEL and F82126 ADDRESS SEL DIP SW SIGNAL

Connector type: 2x4 4-pin DIP switch

Connector location: SW2



Pin	Definition	Pin	Definition
1	DDR3_SEL	2	SA_COM3RTS#
3	GND	4	GND

SW2.1	
OFF	SUPPORT DDR3
ON	SUPPORT DDR3L
SW2.2	
OFF	F82126 ADDRESS IS 4E
ON	F82126 ADDRESS IS 2E

PCIe DIP Switch

Connector type: 2x4 4-pin DIP switch

Connector location: SW1



Pin	Definition	Pin	Definition
1	CFG5	2	CFG6
3	GND	4	GND

PCI Express Bifurcation (CFG6) (CFG5)		
CFG6	CFG5	
0	0	1 x 8, 2 x 4 PCI Express
0	1	reserved
1	0	2 x8 PCI Express
1	1	1 x16 PCI Express



CPU Fan Connector

Connector type: 1x3 3-pin header
Connector location: FAN1



Pin	Definition	Pin	Definition
1	GND	2	VCC5_S
3	VCC5_S		

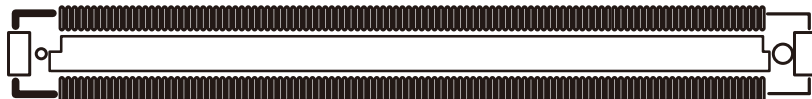


High Speed Board-to-Board Connector: Row A and B, Row C and D

Connector location: J2



Com Express A&B Connector



Com Express C&D Connector

Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
A1	GND(FIXED)	B1	GND(FIXED)	C1	GND(FIXED)	D1	GND(FIXED)
A2	GBE0_MDI3-	B2	GBE0_ACT#	C2	GND	D2	GND
A3	GBE0_MDI3+	B3	LPC_FRAME#	C3	USB_SSRX0-	D3	USB_SSTX0-
A4	GBE0_LINK100#	B4	LPC_AD0	C4	USB_SSRX0+	D4	USB_SSTX0+
A5	GBE0_LINK1000#	B5	LPC_AD1	C5	GND	D5	GND
A6	GBE0_MDI2-	B6	LPC_AD2	C6	USB_SSRX1-	D6	USB_SSTX1-
A7	GBE0_MDI2+	B7	LPC_AD3	C7	USB_SSRX1+	D7	USB_SSTX1+
A8	GBE0_LINK#	B8	LPC_DRQ0#	C8	GND	D8	GND
A9	GBE0_MDI1-	B9	LPC_DRQ1#	C9	USB_SSRX2-	D9	USB_SSTX2-
A10	GBE0_MDI1+	B10	LPC_CLK	C10	USB_SSRX2+	D10	USB_SSTX2+
A11	GND(FIXED)	B11	GND(FIXED)	C11	GND(FIXED)	D11	GND(FIXED)
A12	GBE0_MDI0-	B12	PWRBTN#	C12	USB_SSRX3-	D12	USB_SSTX3-
A13	GBE0_MDI0+	B13	SMB_CK	C13	USB_SSRX3+	D13	USB_SSTX3+

Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
A14	GBE0_CTREF	B14	SMB_DAT	C14	GND	D14	GND
A15	SUS_S3#	B15	SMB_ALERT#	C15	DDI1_PAIR6+	D15	DDI11_CTRL_CLK_AUX+
A16	SATA0_TX+	B16	SATA1_TX+	C16	DDI1_PAIR6-	D16	DDI11_CTRL_DATA_AUX-
A17	SATA0_TX-	B17	SATA1_TX-	C17	RSVD	D17	RSVD
A18	SUS_S4#	B18	SUS_STAT#	C18	RSVD	D18	RSVD
A19	SATA0_RX+	B19	SATA1_RX+	C19	PCIE_RX6+	D19	PCIE_TX6+
A20	SATA0_RX-	B20	SATA1_RX-	C20	PCIE_RX6-	D20	PCIE_TX6-
A21	GND(FIXED)	B21	GND(FIXED)	C21	GND(FIXED)	D21	GND(FIXED)
A22	SATA2_TX+	B22	SATA3_TX+	C22	PCIE_RX7+	D22	PCIE_TX7+
A23	SATA2_TX-	B23	SATA3_TX-	C23	PCIE_RX7-	D23	PCIE_TX7-
A24	SUS_S5#	B24	PWR_OK	C24	DDI1_HPD	D24	RSVD
A25	SATA2_RX+	B25	SATA3_RX+	C25	DDI1_PAIR4+	D25	RSVD
A26	SATA2_RX-	B26	SATA3_RX-	C26	DDI1_PAIR4-	D26	DDI1_PAIR0+
A27	BATLOW#	B27	WDT	C27	RSVD	D27	DDI1_PAIR0-
A28	(S)ATA_ACT#	B28	AC/HDA_SDIN2	C28	RSVD	D28	RSVD
A29	AC/HDA_SYNC	B29	AC/HDA_SDIN1	C29	DDI1_PAIR5+	D29	DDI1_PAIR1+
A30	AC/HDA_RST#	B30	AC/HDA_SDINO	C30	DDI1_PAIR5-	D30	DDI1_PAIR1-
A31	GND(FIXED)	B31	GND(FIXED)	C31	GND(FIXED)	D31	GND(FIXED)
A32	AC/HDA_BITCLK	B32	SPKR	C32	DDI2_CTRL_CLK_AUX+	D32	DDI1_PAIR2+
A33	AC/HDA_SDOUT	B33	I2C_CK	C33	DDI2_CTRL_DATA_AUX-	D33	DDI1_PAIR2-
A34	BIOS_DIS0#	B34	I2C_DAT	C34	DDI2_DDC_AUX_SEL	D34	DDI1_DDC_AUX_SEL
A35	THRMTRIP#	B35	THRM#	C35	RSVD	D35	RSVD
A36	USB6-	B36	USB7-	C36	DDI3_CTRL_CLK_AUX+	D36	DDI1_PAIR3+
A37	USB6+	B37	USB7+	C37	DDI3_CTRL_DATA_AUX-	D37	DDI1_PAIR3-
A38	USB_6_7_OC#	B38	USB_4_5_OC#	C38	DDI3_DDC_AUX_SEL	D38	RSVD
A39	USB4-	B39	USB5-	C39	DDI3_PAIR0+	D39	DDI2_PAIR0+
A40	USB4+	B40	USB5+	C40	DDI3_PAIR0-	D40	DDI2_PAIR0-
A41	GND(FIXED)	B41	GND(FIXED)	C41	GND(FIXED)	D41	GND(FIXED)

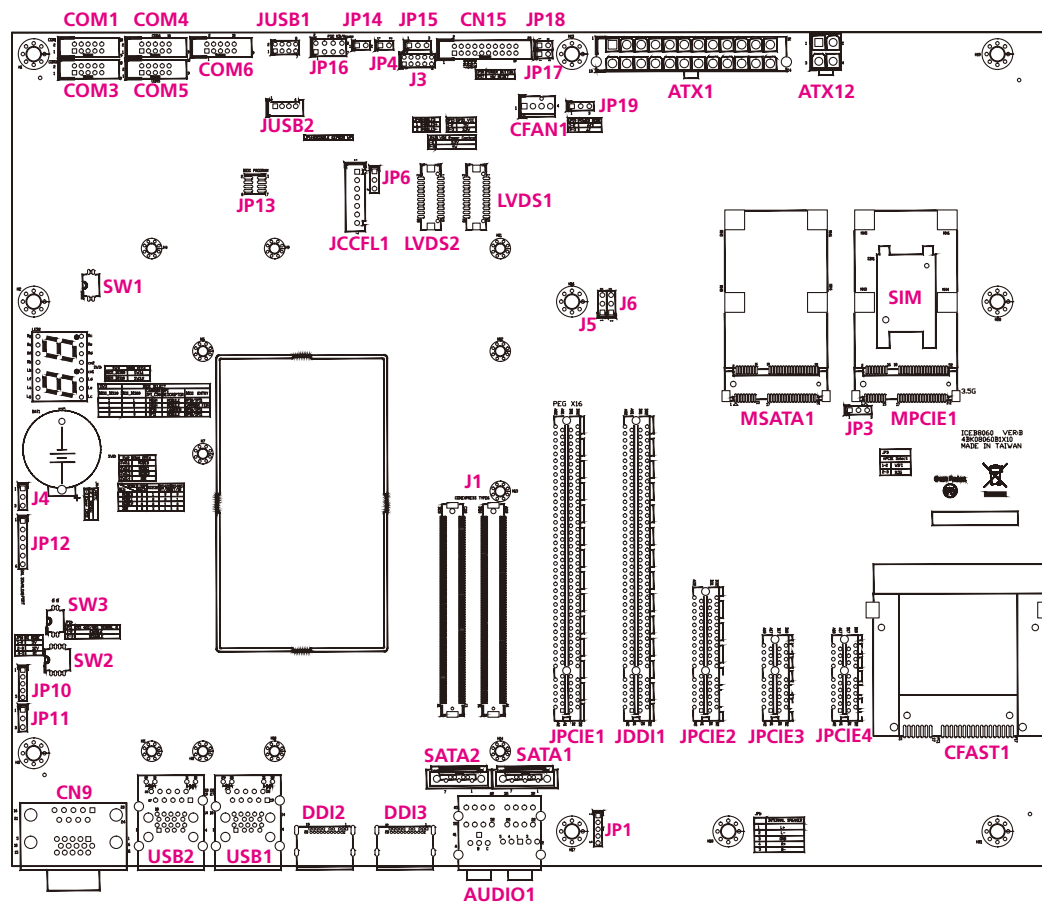
Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
A42	USB2-	B42	USB3-	C42	DDI3_PAIR1+	D42	DDI2_PAIR1+
A43	USB2+	B43	USB3+	C43	DDI3_PAIR1-	D43	DDI2_PAIR1-
A44	USB_2_3_OC#	B44	USB_0_1_OC#	C44	DDI3_HPD	D44	DDI2_HPD
A45	USB0-	B45	USB1-	C45	RSVD	D45	RSVD
A46	USB0+	B46	USB1+	C46	DDI3_PAIR2+	D46	DDI2_PAIR2+
A47	VCC_RTC	B47	EXCD1_PERST#	C47	DDI3_PAIR2-	D47	DDI2_PAIR2-
A48	EXCD0_PERST#	B48	EXCD1_CPPE#	C48	RSVD	D48	RSVD
A49	EXCD0_CPPE#	B49	SYS_RESET#	C49	DDI3_PAIR3+	D49	DDI2_PAIR3+
A50	LPC_SERIRQ	B50	CB_RESET#	C50	DDI3_PAIR3-	D50	DDI2_PAIR3-
A51	GND(FIXED)	B51	GND(FIXED)	C51	GND(FIXED)	D51	GND(FIXED)
A52	PCIE_TX5+	B52	PCIE_RX5+	C52	PEG_RX0+	D52	PEG_TX0+
A53	PCIE_TX5-	B53	PCIE_RX5-	C53	PEG_RX0-	D53	PEG_TX0-
A54	GPIO	B54	GPO1	C54	TYPE0#	D54	PEG_LANE_RV#
A55	PCIE_TX4+	B55	PCIE_RX4+	C55	PEG_RX1+	D55	PEG_TX1+
A56	PCIE_TX4-	B56	PCIE_RX4-	C56	PEG_RX1-	D56	PEG_TX1-
A57	GND	B57	GPO2	C57	TYPE1#	D57	TYPE2#
A58	PCIE_TX3+	B58	PCIE_RX3+	C58	PEG_RX2+	D58	PEG_TX2+
A59	PCIE_TX3-	B59	PCIE_RX3-	C59	PEG_RX2-	D59	PEG_TX2-
A60	GND(FIXED)	B60	GND(FIXED)	C60	GND(FIXED)	D60	GND(FIXED)
A61	PCIE_TX2+	B61	PCIE_RX2+	C61	PEG_RX3+	D61	PEG_TX3+
A62	PCIE_TX2-	B62	PCIE_RX2-	C62	PEG_RX3-	D62	PEG_TX3-
A63	GPI1	B63	GPO3	C63	RSVD	D63	RSVD
A64	PCIE_TX1+	B64	PCIE_RX1+	C64	RSVD	D64	RSVD
A65	PCIE_TX1-	B65	PCIE_RX1-	C65	PEG_RX4+	D65	PEG_TX4+
A66	GND	B66	WAKE0#	C66	PEG_RX4-	D66	PEG_TX4-
A67	GPI2	B67	WAKE1#	C67	RSVD	D67	GND
A68	PCIE_TX0+	B68	PCIE_RX0+	C68	PEG_RX5+	D68	PEG_TX5+
A69	PCIE_TX0-	B69	PCIE_RX0-	C69	PEG_RX5-	D69	PEG_TX5-

Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
A70	GND(FIXED)	B70	GND(FIXED)	C70	GND(FIXED)	D70	GND(FIXED)
A71	LVDS_A0+	B71	LVDS_B0+	C71	PEG_RX6+	D71	PEG_TX6+
A72	LVDS_A0-	B72	LVDS_B0-	C72	PEG_RX6-	D72	PEG_TX6-
A73	LVDS_A1+	B73	LVDS_B1+	C73	SDVO_DATA	D73	GND
A74	LVDS_A1-	B74	LVDS_B1-	C74	PEG_RX7+	D74	PEG_TX7+
A75	LVDS_A2+	B75	LVDS_B2+	C75	PEG_RX7-	D75	PEG_TX7-
A76	LVDS_A2-	B76	LVDS_B2-	C76	GND	D76	GND
A77	LVDS_VDD_EN	B77	LVDS_B3+	C77	RSVD	D77	RSVD
A78	LVDS_A3+	B78	LVDS_B3-	C78	PEG_RX8+	D78	PEG_TX8+
A79	LVDS_A3-	B79	LVDS_BKLT_EN	C79	PEG_RX8-	D79	PEG_TX8-
A80	GND(FIXED)	B80	GND(FIXED)	C80	GND(FIXED)	D80	GND(FIXED)
A81	LVDS_A_CK+	B81	LVDS_B_CK+	C81	PEG_RX9+	D81	PEG_TX9+
A82	LVDS_A_CK-	B82	LVDS_B_CK-	C82	PEG_RX9-	D82	PEG_TX9-
A83	LVDS_I2C_CK	B83	LVDS_BKLT_CTRL	C83	RSVD	D83	RSVD
A84	LVDS_I2C_DAT	B84	VCC_5V_SBY	C84	GND	D84	GND
A85	GPI3	B85	VCC_5V_SBY	C85	PEG_RX10+	D85	PEG_TX10+
A86	RSVD(KBD_RST#)	B86	VCC_5V_SBY	C86	PEG_RX10-	D86	PEG_TX10-
A87	RSVD(A20GATE)	B87	VCC_5V_SBY	C87	GND	D87	GND
A88	PCIE_CLK_REF+	B88	BIOS_DIS1#	C88	PEG_RX11+	D88	PEG_TX11+
A89	PCIE_CLK_REF-	B89	VGA_RED	C89	PEG_RX11-	D89	PEG_TX11-
A90	GND(FIXED)	B90	GND(FIXED)	C90	GND(FIXED)	D90	GND(FIXED)
A91	SPI_POWER	B91	VGA_GRN	C91	PEG_RX12+	D91	PEG_TX12+
A92	SPI_MISO	B92	VGA_BLU	C92	PEG_RX12-	D92	PEG_TX12-
A93	GPO0	B93	VGA_HSYNC	C93	GND	D93	GND
A94	SPI_CLK	B94	VGA_VSYNC	C94	PEG_RX13+	D94	PEG_TX13+
A95	SPI_MOSI	B95	VGA_I2C_CK	C95	PEG_RX13-	D95	PEG_TX13-
A96	TPM_PP	B96	VGA_I2C_DAT	C96	GND	D96	GND
A97	TYPE10#	B97	SPI_CS#	C97	RSVD	D97	RSVD

Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
A98	SER0_TX	B98	RSVD	C98	PEG_RX14+	D98	PEG_TX14+
A99	SER0_RX	B99	RSVD	C99	PEG_RX14-	D99	PEG_TX14-
A100	GND(FIXED)	B100	GND(FIXED)	C100	GND(FIXED)	D100	GND(FIXED)
A101	SER1_TX	B101	FAN_PWMOUT	C101	PEG_RX15+	D101	PEG_TX15+
A102	SER1_RX	B102	FAN_TACHIN	C102	PEG_RX15-	D102	PEG_TX15-
A103	LID#	B103	SLEEP#	C103	GND	D103	GND
A104	VCC_12V	B104	VCC_12V	C104	VCC_12V	D104	VCC_12V
A105	VCC_12V	B105	VCC_12V	C105	VCC_12V	D105	VCC_12V
A106	VCC_12V	B106	VCC_12V	C106	VCC_12V	D106	VCC_12V
A107	VCC_12V	B107	VCC_12V	C107	VCC_12V	D107	VCC_12V
A108	VCC_12V	B108	VCC_12V	C108	VCC_12V	D108	VCC_12V
A109	VCC_12V	B109	VCC_12V	C109	VCC_12V	D109	VCC_12V
A110	GND(FIXED)	B110	GND(FIXED)	C110	GND(FIXED)	D110	GND(FIXED)

Locations of the Jumpers and Connectors for ICEB 8060

The figure below shows the location of the jumpers and connectors for ICEB 8060.





Jumpers

3.5G Module

Connector type: 1x3 3-pin header, 2.0mm pitch
Connector location: JP3



Pin	Settings
1-2 On	Wi-Fi
2-3 On	3.5G

2-3 On: default

LVDS Power Select (3.3V/5V)

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: JP6



Pin	Settings
1-2 On	+3.3V
2-3 On	+5V

2-3 On: default





Thermal Select

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: JP11



Pin	Settings
1-2 On	Enable
2-3 On	Disable

2-3 On: default

GPIO Power Select

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: JP15



Pin	Settings
1-2 On	+5V
2-3 On	+3.3V

2-3 On: default



Power Mode Select

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: JP19



Pin	Settings
1-2 On	ATX
2-3 On	AT

1-2 On: default

RTC Clear

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: J4



Pin	Settings
1-2 On	Normal
2-3 On	Clear CMOS

1-2 On: default



Fintek TX/RX Pin Header

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: J5 and J6



J6

Pin	Settings
1	SER0TX1
2	SER0RX1
3	GND

J5

Pin	Settings
1	SER1TX1
2	SER1RX1
3	GND



DIP Switch Settings

Close to U4

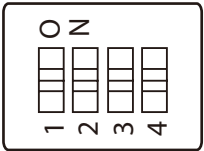
Connector type: 2x2 4-pin DIP switch
Connector location: SW1



Pin	Settings
1-2 Off	Enable
1-2 On	Disable

RS232/ RS422/ RS485 Mode Select

Connector type: 2x4 8-pin DIP switch
Connector location: SW2



SW2	ON:0 OFF:1
SW2.1	MODE0
SW2.2	MODE1
SW2.3	MODE2
SW2.4	DIR

BIOS Select

Connector type: 2x2 4-pin DIP switch
Connector location: SW3



SW3	ON:0 OFF:1
SW3.1	BIOS_DIS0#
SW3.2	BIOS_DIS1#

BIOS_DIS1#	BIOS_DIS0#	Carrier SPI_CS#	SPI Descriptor	BIOS Entry
1	1	High	Module	SPI0/SPI1
1	0	High	Module	Carrier FWH
0	1	SPI0	Carrier	SPI0/SPI1
0	0	SPI1	Module	SPI0/SPI1

Connector Pin Definitions

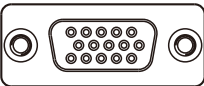
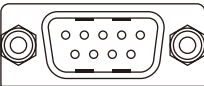
External Connectors

VGA and COM2 Ports

Connector type: DB-15 port, 15-pin D-Sub (VGA)

DB-9 port, 9-pin D-Sub

Connector location: CN9



VGA

Pin	Definition	Pin	Definition
1	VGA_R	2	GND
3	VGA_B	4	NC
5	GND	6	VGADET
7	GND	8	GND
9	+5V	10	GND
11	NC	12	VGA_DAT
13	VGA_HSYNC	14	VGA_VSYNC
15	VGA_CLK	MH1	RGND
MH1	RGND		

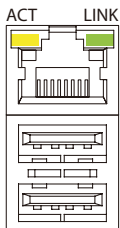
COM2

Pin	Definition	Pin	Definition
16	COM_DCD#2	17	COM_RXD2
18	COM_TXD2	19	COM_DTR#2
20	GND	21	COM_DSR#2
22	COM_RTS#2	23	COM_CTS#2
24	COM_RI#2_con	MH3	RGND
MH4	RGND		

LAN and USB Ports

Connector type: RJ45 port with LEDs and dual USB 3.0/2.0 ports, Type A

Connector location: USB1 and USB2



USB1

Pin	Definition	Pin	Definition
1	+5V_USB	2	USB_0N_C
3	USB_OP_C	4	GND
5	USB3_RX0_N_C	6	USB3_RX0_P_C
7	GND	8	USB3_TX0_N_C
9	USB3_TX0_P_C	10	+5V_USB
11	USB_1N_C	12	USB_1P_C
13	GND	14	USB3_RX1_N_C
15	USB3_RX1_P_C	16	GND
17	USB3_TX1_N_C	18	USB3_TX1_P_C
MH1	RGND	MH2	RGND
MH3	RGND	MH4	RGND

LAN1

Pin	Definition	Pin	Definition
19	V25_LA1	20	LAN1_MDI0P
21	LAN1_MDI0N	22	LAN1_MDI1P
23	LAN1_MDI1N	24	LAN1_MDI2P
25	LAN1_MDI2N	26	LAN1_MDI3P
27	LAN1_MDI3N	28	GND
29	+3.3VSBY	30	LAN1_LED_ACT#
31	LAN1_LED_LINK100#	32	LAN1_LED_LINK1G#O
MH5	RGND	MH6	RGND
MH7	RGND	MH8	RGND

USB2

Pin	Definition	Pin	Definition
1	+5V_USB	2	USB_2N_C
3	USB_2P_C	4	GND
5	USB3_RX2_N_C	6	USB3_RX2_P_C
7	GND	8	USB3_TX2_N_C
9	USB3_TX2_P_C	10	+5V_USB
11	USB_3N_C	12	USB_3P_C
13	GND	14	USB3_RX3_N_C
15	USB3_RX3_P_C	16	GND
17	USB3_TX3_N_C	18	USB3_TX3_P_C
MH1	RGND	MH2	RGND
MH3	RGND	MH4	RGND

LAN2

Pin	Definition	Pin	Definition
19	V25_LA1	20	LAN2_MDI0P
21	LAN2_MDI0N	22	LAN2_MDI1P
23	LAN2_MDI1N	24	LAN2_MDI2P
25	LAN1_MDI2N	26	LAN2_MDI3P
27	LAN1_MDI3N	28	GND
29	+3.3VSBY	30	LAN2_LED_ACT#
31	LAN2_LED_LINK100#	32	LAN2_LED_LINK1G#O
MH5	RGND	MH6	RGND
MH7	RGND	MH8	RGND

DisplayPort

Connector type: DisplayPort

Connector location: DDI2 and DDI3



DDI2

Pin	Definition	Pin	Definition
1	DP2_CN_LANE0P	2	GND
3	DP2_CN_LANE0N	4	DP2_CN_LANE1P
5	GND	6	DP2_CN_LANE1N
7	DP2_CN_LANE2P	8	GND
9	DP2_CN_LANE2N	10	DP2_CN_LANE3P
11	GND	12	DP2_CN_LANE3N
13	DP2_CONFIG1	14	DP2_CONFIG2
15	DDI2_CTRLCLK_AUXP	16	GND
17	DDI3_CTRLCLK_AUXN	18	DP2_HPDC
19	GND	20	+3.3V
MH1	RGND	MH2	RGND
MH3	RGND	MH4	RGND

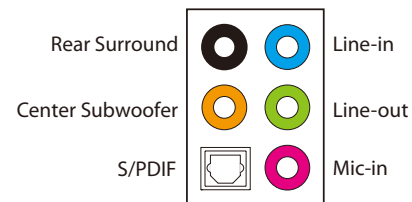
DDI3

Pin	Definition	Pin	Definition
1	DP3_CN_LANE0P	2	GND
3	DP3_CN_LANE0N	4	DP3_CN_LANE1P
5	GND	6	DP3_CN_LANE1N
7	DP3_CN_LANE2P	8	GND
9	DP3_CN_LANE2N	10	DP3_CN_LANE3P
11	GND	12	DP3_CN_LANE3N
13	DP3_CONFIG1	14	DP3_CONFIG2
15	DDI3_CTRLCLK_AUXP	16	GND
17	DDI3_CTRLDATA_AUXN	18	DP3_HPDC
19	GND	20	+3.3V
MH1	RGND	MH2	RGND
MH3	RGND	MH4	RGND

Audio Connectors

Connector type: 5x 3.5mm TRS, 1x S/PDIF

Connector location: AUDIO1



Pin	Definition	Pin	Definition
1	AGND	2	MIC_L
3	MIC_JD1	4	AGND
5	MIC_R	22	FRONT_L2
23	FRONT_JD	24	AGND
25	FRONT_R2	32	LINEIN_L
33	LINE1_JD	34	AGND
35	LINEIN_R	41	AGND
42	CEN_OUT	43	CEN_JD
44	AGND	45	LEF_OUT
52	SIDE_L	53	SIDESURR_JD
54	AGND	55	SIDE_R
A	SPDIFO	B	+5V
C	GND	MH1	RGND
MH2	RGND	MH3	RGND
MH4	RGND		

Internal Connectors

HDD LED

Connector type: 1x2 2-pin header, 2.54mm pitch
Connector location: JP4



Pin	Definition
1	+5V
2	GND

Internal Speaker

Connector type: 1x5 5-pin header, 2.0mm pitch
Connector location: JP1



Pin	Definition
1	SPKR_L+
2	SPKR_L-
3	AGND
4	SPKR_R+
5	SPKR_R-



COM2 RS232 RI# Pin Power Select

Connector type: 1x5 5-pin header, 2.0mm pitch
Connector location: JP10



Pin	Definition
1	SPKR_L+
2	SPKR_L-
3	AGND
4	SPKR_R+
5	SPKR_R-

GAL Download Port

Connector type: 1x6 6-pin header, 2.54mm pitch
Connector location: JP12

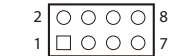


Pin	Definition	Pin	Definition
1	+3.3V	2	GND
3	TCK	4	TDO
5	TDI	6	TMS



SPI

Connector type: 2x4 8-pin header, 1.27mm pitch
Connector location: JP13



Pin	Definition	Pin	Definition
1	SPI_CS	2	SPI_MISO
3	SPI_POWER	4	GND
5	SPI_MOSI	6	SPI_CLK
7	SPI_POWER	8	SPI_POWER

Disable EEPROM

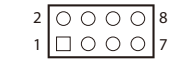
Connector type: 1x2 2-pin header, 2.54mm pitch
Connector location: JP14



Pin	Definition
1	EEPROM_WP
2	GND

Keyboard and Mouse Pin Header

Connector type: 2x4 8-pin header, 2.54mm pitch
Connector location: JP16



Pin	Definition	Pin	Definition
1	+5VSBY	2	+5VSBY
3	KDAT_R	4	MDAT_R
5	KCLK_R	6	MCLK_R
7	KB_GND	8	KB_GND

HW Reset Function

Connector type: 1x2 2-pin header, 2.54mm pitch
Connector location: JP17



Pin	Definition
1	HW_R_RST#
2	GND



Power Button

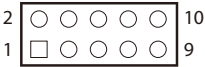
Connector type: 1x2 2-pin header, 2.54mm pitch
Connector location: JP18



Pin	Definition
1	PWRBTN
2	GND

GPIO

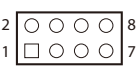
Connector type: 2x5 10-pin header, 2.0mm pitch
Connector location: J3



Pin	Definition	Pin	Definition
1	GP_VCC	2	GND
3	ICH_GPO0_OUT	4	ICH_GPIO_IN
5	ICH_GPO1_OUT	6	ICH_GPI1_IN
7	ICH_GPO2_OUT	8	ICH_GPI2_IN
9	ICH_GPO3_OUT	10	ICH_GPI3_IN

USB Port 6 and 7

Connector type: 2x4 8-pin header, 2.0mm pitch
Connector location: JUSB1



Pin	Definition	Pin	Definition
1	+5V_USB	2	GND
3	USB6N_C	4	USB7P_C
5	USB6P_C	6	USB7N_C
7	GND	8	+5V_USB

USB Port 5

Connector type: 1x4 4-pin header, 2.0mm pitch
Connector location: JUSB2



Pin	Definition
1	+5V_USB
2	USB_5N
3	USB_5P
4	GND

CCFL

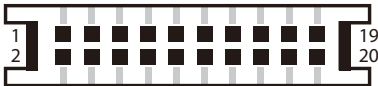
Connector type: 1x7 7-pin header, 2.0mm pitch
Connector location: JCCFL1



Pin	Definition	Pin	Definition
1	+5V	2	GND
3	ICH_GPO0_OUT	4	ICH_GPIO_IN
5	ICH_GPO1_OUT	6	ICH_GPI1_IN
7	ICH_GPO2_OUT	8	ICH_GPI2_IN
9	ICH_GPO3_OUT	10	ICH_GPI3_IN

LVDS Channel A

Connector type: 2x10 20-pin header, 1.25mm pitch
Connector location: LVDS1



Pin	Definition	Pin	Definition
1	LVDS_DDC_CLK	2	LVDS_DDC_DATA
3	Panel_VDD	4	LVDSA_DATA0
5	LVDSA_DATA3	6	LVDSA_DATA#0
7	LVDSA_DATA#3	8	Panel_VDD
9	GND	10	LVDSA_DATA1
11	LVDSA_CLK	12	LVDSA_DATA#1
13	LVDSA_CLK#	14	GND
15	GND	16	Panel_backlight
17	LVDSA_DATA2	18	Panel_backlight
19	LVDSA_DATA#2	20	GND
MH1	GND	MH2	GND

LVDS Channel B

Connector type: 2x10 20-pin header, 1.25mm pitch
Connector location: LVDS2



Pin	Definition	Pin	Definition
1	LVDS_DDC_CLK	2	LVDS_DDC_DATA
3	Panel_VDD	4	LVDSB_DATA0
5	LVDSB_DATA3	6	LVDSB_DATA#0
7	LVDSB_DATA#3	8	Panel_VDD
9	GND	10	LVDSB_DATA1
11	LVDSB_CLK	12	LVDSB_DATA#1
13	LVDSB_CLK#	14	GND
15	GND	16	Panel_backlight
17	LVDSB_DATA2	18	Panel_backlight
19	LVDSB_DATA#2	20	GND
MH1	GND	MH2	GND

COM1 Port Box Header

Connector type: 2x5 10-pin header, 2.0mm pitch
Connector location: COM1



Pin	Definition	Pin	Definition
1	COM_DCD#1	2	COM_RXD1
3	COM_TXD1	4	COM_DTR#1
5	GND	6	COM_DSR#1
7	COM_RTS#1	8	COM_CTS#1
9	COM_RI#1	10	GND



COM3 Port Box Header

Connector type: 2x5 10-pin header, 2.0mm pitch
Connector location: COM3



Pin	Definition	Pin	Definition
1	COM_DCD#3	2	COM_RXD3
3	COM_TXD3	4	COM_DTR#3
5	GND	6	COM_DSR#3
7	COM_RTS#3	8	COM_CTS#3
9	COM_RI#3	10	GND

COM4 Port Box Header

Connector type: 2x5 10-pin header, 2.0mm pitch
Connector location: COM4



Pin	Definition	Pin	Definition
1	COM_DCD#4	2	COM_RXD4
3	COM_TXD4	4	COM_DTR#4
5	GND	6	COM_DSR#4
7	COM_RTS#4	8	COM_CTS#4
9	COM_RI#4	10	GND



COM5 Port Box Header

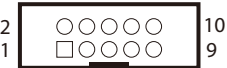
Connector type: 2x5 10-pin header, 2.0mm pitch
Connector location: COM5



Pin	Definition	Pin	Definition
1	COM_DCD#5	2	COM_RXD5
3	COM_TXD5	4	COM_DTR#5
5	GND	6	COM_DSR#5
7	COM_RTS#5	8	COM_CTS#5
9	COM_RI#5	10	GND

COM6 Port Box Header

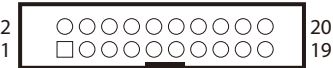
Connector type: 2x5 10-pin header, 2.0mm pitch
Connector location: COM6



Pin	Definition	Pin	Definition
1	COM_DCD#6	2	COM_RXD6
3	COM_TXD6	4	COM_DTR#6
5	GND	6	COM_DSR#6
7	COM_RTS#6	8	COM_CTS#6
9	COM_RI#6	10	GND

Battery Charger

Connector type: 2x10 20-pin header, 2.0mm pitch
Connector location: CN15



Pin	Definition	Pin	Definition
1	LPC_AD0	2	SMBCLK_MAIN
3	LPC_AD1	4	SMBDATA_MAIN
5	LPC_AD2	6	SIO1_RSMRST#
7	LPC_AD3	8	PM_SLP_S3#
9	INT_SERIRQ	10	PM_SLP_S4#
11	LPC_FRAME#	12	PM_SLP_S5#
13	LPC_BAT_CLK	14	PM_PWRBTN#
15	GND	16	PM_BATLOW#
17	GND	18	CB_RESET#
19	GND	20	PM_THRM#

* Preliminary box-header reserved for NEXCOM use only, above pins defined are subject to change without further notices. *

Fan Connector

Connector type: 1x4 4-pin header, 2.54mm pitch
Connector location: CFAN1

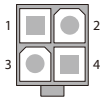


Pin	Definition	Pin	Definition
1	GND	2	+12V
3	FANIN	4	FANOUT



4-Pin Power Connector

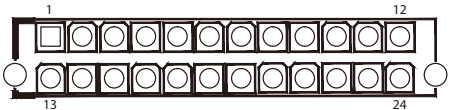
Connector type: 2x2 4-pin header
Connector location: ATX12



Pin	Definition
1	GND
2	GND
3	+12V
4	+12V

ATX Power Connector

Connector type: 2x12 24-pin header, 4.2mm pitch
Connector location: ATX1

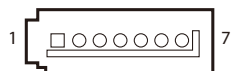


Pin	Definition	Pin	Definition
1	+3.3V	2	+3.3V
3	GND	4	+5V
5	GND	6	+5V
7	GND	8	PS_PWRGD
9	+5VSBY	10	+12V
11	+12V	12	+3.3V
13	+3.3V	14	-12V
15	GND	16	PS_ON# R
17	GND	18	GND
19	GND	20	-5V
21	+5V	22	+5V
23	+5V	24	GND

SATA3.0 Connectors

Connector type: Standard Serial ATAIII 7P (1.27mm, SATA-M-180)

Connector location: SATA1 and SATA2



SATA1

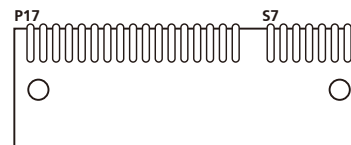
Pin	Definition	Pin	Definition
1	GND	2	SATA_TXP0
3	SATA_TXN0	4	GND
5	SATA_RXN0	6	SATA_RXP0
7	GND		

SATA2

Pin	Definition	Pin	Definition
1	GND	2	SATA_TXP1
3	SATA_TXN1	4	GND
5	SATA_RXN1	6	SATA_RXP1
7	GND		

CFast Slot

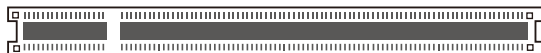
Connector location: CFAST1



Pin	Definition	Pin	Definition
S1	GND	S2	SATA_TXP2
S3	SATA_TXN2	S4	GND
S5	SATA_RXN2	S6	SATA_RXP2
S7	GND		
P1	GND	P2	GND
P3	NC	P4	NC
P5	NC	P6	NC
P7	GND	P8	TEST POINT
P9	NC	P10	NC
P11	NC	P12	NC
P13	+3.3V	P14	+3.3V
P15	GND	P16	GND
P17	NC	MH1	GND
MH2	GND		

PEG x16 Slot

Connector location: JPCIE1



Pin	Definition	Pin	Definition
A1	NC	B1	+12V
A2	+12V	B2	+12V
A3	+12V	B3	+12V
A4	GND	B4	GND
A5	GND	B5	SMB_CLK
A6	+3.3V	B6	SMB_DATA
A7	NC	B7	GND
A8	+3.3V	B8	+3.3V
A9	+3.3V	B9	GND
A10	+3.3V	B10	+3.3VSBY
A11	CB_RESET#	B11	PCIE_WAKE#
A12	GND	B12	NC
A13	PCIE_X16_CLKP	B13	GND
A14	PCIE_X16_CLKN	B14	PEG_TX0P
A15	GND	B15	PEG_TX0N
A16	PEG_RX0P	B16	GND
A17	PEG_RX0N	B17	SDVO_CTRLCLK
A18	GND	B18	GND

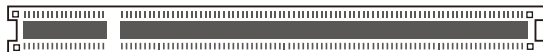
Pin	Definition	Pin	Definition
A19	NC	B19	PEG_TX1P
A20	GND	B20	PEG_TX1N
A21	PEG_RX1P	B21	GND
A22	PEG_RX1N	B22	GND
A23	GND	B23	PEG_TX2P
A24	GND	B24	PEG_TX2N
A25	PEG_RX2P	B25	GND
A26	PEG_RX2N	B26	GND
A27	GND	B27	PEG_TX3P
A28	GND	B28	PEG_TX3N
A29	PEG_RX3P	B29	GND
A30	PEG_RX3N	B30	NC
A31	GND	B31	SDVO_CTRLDATA
A32	NC	B32	GND
A33	NC	B33	PEG_TX4P
A34	GND	B34	PEG_TX4N
A35	PEG_RX4P	B35	GND
A36	PEG_RX4N	B36	GND

Pin	Definition	Pin	Definition
A37	GND	B37	PEG_TX5P
A38	GND	B38	PEG_TX5N
A39	PEG_RX5P	B39	GND
A40	PEG_RX5N	B40	GND
A41	GND	B41	PEG_TX6P
A42	GND	B42	PEG_TX6N
A43	PEG_RX6P	B43	GND
A44	PEG_RX6N	B44	GND
A45	GND	B45	PEG_TX7P
A46	GND	B46	PEG_TX7N
A47	PEG_RX7P	B47	GND
A48	PEG_RX7N	B48	NC
A49	GND	B49	GND
A50	NC	B50	PEG_TX8P
A51	GND	B51	PEG_TX8N
A52	PEG_RX8P	B52	GND
A53	PEG_RX8N	B53	GND
A54	GND	B54	PEG_TX9P
A55	GND	B55	PEG_TX9N
A56	PEG_RX9P	B56	GND
A57	PEG_RX9N	B57	GND
A58	GND	B58	PEG_TX10P
A59	GND	B59	PEG_TX10N

Pin	Definition	Pin	Definition
A60	PEG_RX10P	B60	GND
A61	PEG_RX10N	B61	GND
A62	GND	B62	PEG_TX11P
A63	GND	B63	PEG_TX11N
A64	PEG_RX11P	B64	GND
A65	PEG_RX11N	B65	GND
A66	GND	B66	PEG_TX12P
A67	GND	B67	PEG_TX12N
A68	PEG_RX12P	B68	GND
A69	PEG_RX12N	B69	GND
A70	GND	B70	PEG_TX13P
A71	GND	B71	PEG_TX13N
A72	PEG_RX13P	B72	GND
A73	PEG_RX13N	B73	GND
A74	GND	B74	PEG_TX14P
A75	GND	B75	PEG_TX14N
A76	PEG_RX14P	B76	GND
A77	PEG_RX14N	B77	GND
A78	GND	B78	PEG_TX15P
A79	GND	B79	PEG_TX15N
A80	PEG_RX15P	B80	GND
A81	PEG_RX15N	B81	NC
A82	GND	B82	NC

Digital Display Interface (Port B/ DDI #1)

Connector location: JDDI1



Pin	Definition	Pin	Definition
A1	NC	B1	+12V
A2	+12V	B2	+12V
A3	+12V	B3	+12V
A4	GND	B4	GND
A5	NC	B5	NC
A6	NC	B6	NC
A7	NC	B7	GND
A8	NC	B8	+3.3V
A9	+3.3V	B9	NC
A10	+3.3V	B10	+3.3VSBY
A11	NC	B11	NC
A12	GND	B12	NC
A13	NC	B13	GND
A14	NC	B14	SDVO_RED_0P
A15	NC	B15	SDVO_RED_0N
A16	SDVO_TVCLKIN_5P	B16	GND
A17	SDVO_TVCLKIN_5N	B17	DDI1_CTRLCLK_AUXP
A18	GND	B18	GND

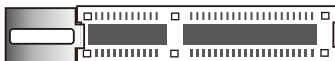
Pin	Definition	Pin	Definition
A19	NC	B19	SDVO_GRN_1P
A20	GND	B20	SDVO_GRN_1N
A21	SDVO_INT_4P	B21	GND
A22	SDVO_INT_4NW	B22	GND
A23	NC	B23	SDVO_BLU_2P
A24	NC	B24	SDVO_BLU_2N
A25	SDVO_FLDSTALL_6P	B25	GND
A26	SDVO_FLDSTALL_6N	B26	GND
A27	GND	B27	SDVO_CK_3P
A28	GND	B28	SDVO_CK_3N
A29	NC	B29	GND
A30	NC	B30	NC
A31	GND	B31	DDI1_CTRLDATA_AUXN
A32	NC	B32	GND
A33	NC	B33	NC
A34	GND	B34	NC
A35	NC	B35	GND
A36	NC	B36	GND

Pin	Definition	Pin	Definition
A37	GND	B37	NC
A38	GND	B38	NC
A39	NC	B39	GND
A40	NC	B40	GND
A41	GND	B41	DP1_HPDP
A42	GND	B42	NC
A43	NC	B43	GND
A44	NC	B44	GND
A45	GND	B45	NC
A46	GND	B46	NC
A47	NC	B47	GND
A48	NC	B48	NC
A49	GND	B49	GND
A50	NC	B50	NC
A51	GND	B51	NC
A52	NC	B52	GND
A53	NC	B53	GND
A54	GND	B54	NC
A55	GND	B55	NC
A56	NC	B56	GND
A57	NC	B57	GND
A58	GND	B58	NC
A59	GND	B59	NC

Pin	Definition	Pin	Definition
A60	NC 0	B60	GND
A61	NC	B61	GND
A62	GND	B62	NC
A63	GND	B63	NC
A64	NC	B64	GND
A65	NC 1	B65	GND
A66	GND	B66	NC
A67	GND	B67	NC
A68	NC	B68	GND
A69	NC	B69	GND
A70	GND	B70	NC
A71	GND	B71	NC
A72	NC	B72	GND
A73	NC	B73	GND
A74	GND	B74	NC
A75	GND	B75	NC
A76	NC	B76	GND
A77	NC	B77	GND
A78	GND	B78	NC
A79	GND	B79	NC
A80	NC	B80	GND
A81	NC	B81	DDI1_DDC_AUX_SEL
A82	GND	B82	NC

PCIe x4

Connector location: JPCIE2



Pin	Definition	Pin	Definition
A1	GND	B1	+12V
A2	+12V	B2	+12V
A3	+12V	B3	+12V
A4	GND	B4	GND
A5	NC	B5	SMB_CLK
A6	NC	B6	SMB_DATA
A7	NC	B7	GND
A8	NC	B8	+3.3V
A9	+3.3V	B9	NC
A0	+3.3V	B10	+3.3VSBY
A11	CB_RESET#	B11	PCIE_WAKE#
A12	GND	B12	NC
A13	PCIE_X4_CLKP	B13	GND
A14	PCIE_X4_CLKN	B14	PCIE_TX0P
A15	GND	B15	PCIE_TX0N
A16	PCIE_RX0P	B16	GND

Pin	Definition	Pin	Definition
A17	PCIE_RX0N	B17	NC
A18	GND	B18	GND
A19	NC	B19	PCIE_TX1P
A20	GND	B20	PCIE_TX1N
A21	PCIE_RX1P	B21	GND
A22	PCIE_RX1N	B22	GND
A23	GND	B23	PCIE_TX2P
A24	GND	B24	PCIE_TX2N
A25	PCIE_RX2P	B25	GND
A26	PCIE_RX2N	B26	GND
A27	GND	B27	PCIE_TX3P
A28	GND	B28	PCIE_TX3N
A29	PCIE_RX3P	B29	GND
A30	PCIE_RX3N	B30	NC
A31	GND	B31	NC
A32	NC	B32	GND

PCIe x1 Slots

Connector location: JPCIE3 and JPCIE4



JPCIE3

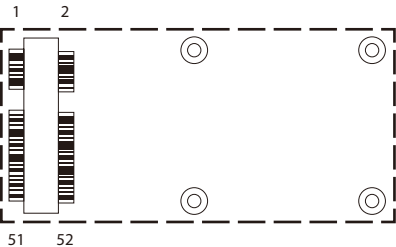
Pin	Definition	Pin	Definition
A1	GND	B1	+12V
A2	+12V	B2	+12V
A3	+12V	B3	+12V
A4	GND	B4	GND
A5	NC	B5	SMB_CLK
A6	NC	B6	SMB_DATA
A7	NC	B7	GND
A8	NC	B8	+3.3V
A9	+3.3V	B9	NC
A10	+3.3V	B10	+3.3VSBY
A11	CB_RESET#	B11	PCIE_WAKE#
A12	GND	B12	NC
A13	PCIE_X1_CLK0P	B13	GND
A14	PCIE_X1_CLK0N	B14	PCIE_TX4P
A15	GND	B15	PCIE_TX4N
A16	PCIE_RX4P	B16	GND
A17	PCIE_RX4N	B17	NC
A18	GND	B18	GND

JPCIE4

Pin	Definition	Pin	Definition
A1	GND	B1	+12V
A2	+12V	B2	+12V
A3	+12V	B3	+12V
A4	GND	B4	GND
A5	NC	B5	SMB_CLK
A6	NC	B6	SMB_DATA
A7	NC	B7	GND
A8	NC	B8	+3.3V
A9	+3.3V	B9	NC
A10	+3.3V	B10	+3.3VSBY
A11	CB_RESET#	B11	PCIE_WAKE#
A12	GND	B12	NC
A13	PCIE_X1_CLK4P	B13	GND
A14	PCIE_X1_CLK4N	B14	PCIEX1_TX7P
A15	GND	B15	PCIEX1_TX7N
A16	PCIEX1_RX7P	B16	GND
A17	PCIEX1_RX7N	B17	NC
A18	GND	B18	GND

Mini-PCle Slot (Wi-Fi and 3G)

Connector location: MPCIE1

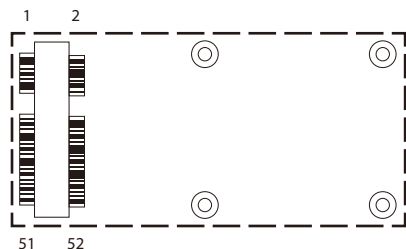


Pin	Definition	Pin	Definition
1	PCIE_WAKE#	2	3VSB_MINI
3	NC	4	GND
5	NC	6	1V5
7	3VSB_MINI	8	UIM_PWR
9	GND	10	UIM_DATA
11	PMINI1_REFCLKN	12	UIM_CLK
13	MINI1_REFCLKP	14	UIM_RESET
15	GND	16	UIM_VPP
17	NC	18	GND
19	NC	20	3VSB_MINI
21	GND	22	MINI1_RST#
23	PCIE_RXN5	24	3VSB_MINI
25	PCIE_RXP5	26	GND

Pin	Definition	Pin	Definition
27	GND	28	1V5
29	GND	30	SMB_CLK
31	MINI1_TXN	32	SMB_DATA
33	MINI1_TXP	34	GND
35	GND	36	USB_4N
37	GND	38	USB_4P
39	3VSB_MINI	40	GND
41	3VSB_MINI	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	1V5
49	NC	50	GND
51	NC	52	3VSB_MINI

Mini-PCIe Slot (mSATA)

Connector location: MSATA1

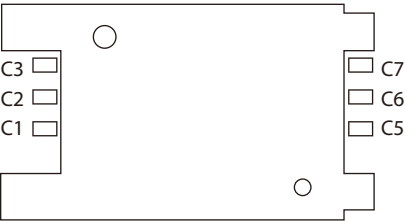


Pin	Definition	Pin	Definition
1	NC	2	+3.3V
3	NC	4	GND
5	NC	6	1V5_MSATA
7	NC	8	NC
9	GND	10	NC
11	NC	12	NC
13	NC	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	NC
21	GND	22	NC
23	SATA_RX3P	24	+3.3V
25	SATA_RX3N	26	GND

Pin	Definition	Pin	Definition
27	GND	28	1V5_MSATA
29	GND	30	SMBCLK_MAIN
31	SATA_TXN3	32	SMBDATA_MAIN
33	SATA_TXP3	34	GND
35	GND	36	NC
37	GND	38	NC
39	+3.3V	40	GND
41	+3.3V	42	NC
43	GND	44	NC
45	TEST POINT	46	NC
47	TEST POINT	48	1V5_MSATA
49	NC	50	GND
51	+3.3V	52	+3.3V

SIM Card Slot

Connector location: SIM1



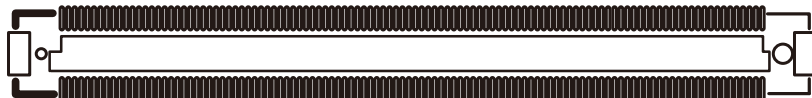
Pin	Definition	Pin	Definition
C 1	UIM_PWR	C 5	GND
C 2	UIM_RESET	C 6	UIM_VPP
C 3	UIM_CLK	C 7	UIM_DATA

High Speed Board-to-Board Connector: Row A and B, Row C and D

Connector location: J1



Com Express A&B Connector



Com Express C&D Connector

Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
A1	GND(FIXED)	B1	GND(FIXED)	C1	GND(FIXED)	D1	GND(FIXED)
A2	LAN1_MDI3N	B2	LAN1_LED_ACT#	C2	GND	D2	GND
A3	LAN1_MDI3P	B3	LPC_FRAME#	C3	USB3_RX0_N	D3	USB3_TX0_N
A4	LAN1_LED_LINK100#	B4	LPC_AD0	C4	USB3_RX0_P	D4	USB3_TX0_P
A5	LAN_LED_LINK1G#	B5	LPC_AD1	C5	GND	D5	GND
A6	LAN1_MDI2N	B6	LPC_AD2	C6	USB3_RX1_N	D6	USB3_TX1_N
A7	LAN1_MDI2P	B7	LPC_AD3	C7	USB3_RX1_P	D7	USB3_TX1_P
A8	GBE0_LINK#	B8	LPC_DRQ0#	C8	GND	D8	GND
A9	LAN1_MDI1N	B9	LPC_DRQ1#	C9	USB3_RX2_N	D9	USB3_TX2_N
A10	LAN1_MDI1P	B10	LPC_CLK	C10	USB3_RX2_P	D10	USB3_TX2_P
A11	GND(FIXED)	B11	GND(FIXED)	C11	GND(FIXED)	D11	GND(FIXED)
A12	LAN1_MDI0N	B12	PM_PWRBTN#	C12	USB3_RX3_N	D12	USB3_TX3_N
A13	LAN1_MDI0P	B13	SMB_CLK	C13	USB3_RX3_P	D13	USB3_TX3_P

Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
A14	LAN_CTREF	B14	SMB_DATA	C14	GND	D14	GND
A15	PM_SLP_S3#	B15	SMB_ALERT#	C15	SDVO_FLDSTALL_6P	D15	DDI1_CTRLCLK_AUXP
A16	SATA_TX0P	B16	SATA_TX1P	C16	SDVO_FLDSTALL_6N	D16	DDI1_CTRLDATA_AUXN
A17	SATA_TX0N	B17	SATA_TX1N	C17	NC	D17	NC
A18	PM_SLP_S4#	B18	SUS_STAT#	C18	NC	D18	NC
A19	SATA_RX0P	B19	SATA_RX1P	C19	PCIE_RX6_LAN2P	D19	PCIE_TX6_LAN2P
A20	SATA_RX0N	B20	SATA_RX1N	C20	PCIE_RX6_LAN2N	D20	PCIE_TX6_LAN2N
A21	GND(FIXED)	B21	GND(FIXED)	C21	GND(FIXED)	D21	GND(FIXED)
A22	SATA_TX2P	B22	SATA_TX3P	C22	PCIEX1_RX7P	D22	PCIEX1_TX7P
A23	SATA_TX2N	B23	SATA_TX3N	C23	PCIEX1_RX7N	D23	PCIEX1_TX7N
A24	PM_SLP_S5#	B24	PS_PWRGD_CE	C24	DP1_HPD	D24	NC
A25	SATA_RXP2	B25	SATA_RX3P	C25	SDVO_INT_4P	D25	NC
A26	SATA_RXN2	B26	SATA_RX3N	C26	SDVO_INT_4N	D26	SDVO_RED_0P
A27	PM_BATLOW#	B27	GAL_WDT#	C27	NC	D27	SDVO_RED_0N
A28	ICH_SATA_LED#	B28	HDA_SDIN2	C28	NC	D28	NC
A29	HDA_SYNC	B29	HDA_SDIN1	C29	SDVO_TVCLKIN_5P	D29	SDVO_GRN_1P
A30	HDA_RST#	B30	HDA_SDIN0	C30	SDVO_TVCLKIN_5N	D30	SDVO_GRN_1N
A31	GND(FIXED)	B31	GND(FIXED)	C31	GND(FIXED)	D31	GND(FIXED)
A32	HDA_BIT_CLK	B32	HDA_SPKR	C32	DDI2_CTRLCLK_AUXP	D32	SDVO_BLU_2P
A33	HDA_SDOUT	B33	I2C_CLK_CE	C33	DDI2_CTRLDATA_AUXN	D33	SDVO_BLU_2N
A34	BIOS_DIS0#	B34	I2C_DAT_CE	C34	DP2_CTRL_AUX_SEL	D34	DDI1_DDC_AUX_SEL
A35	PM_THRMTRIP#	B35	PM_THRM#	C35	NC	D35	NC
A36	USB_6N	B36	USB_7N	C36	DDI3_CTRLCLK_AUXP	D36	SDVO_CK_3P
A37	USB_6P	B37	USB_7P	C37	DDI3_CTRLDATA_AUXN	D37	SDVO_CK_3N
A38	USB_OC67#	B38	USB_OC45#	C38	DP3_CTRL_AUX_SEL	D38	NC
A39	USB_4N	B39	USB_5N	C39	DP3_LANE0P	D39	DP2_LANE0P
A40	USB_4P	B40	USB_5P	C40	DP3_LANE0N	D40	DP2_LANE0N
A41	GND(FIXED)	B41	GND(FIXED)	C41	GND(FIXED)	D41	GND(FIXED)

Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
A42	USB_2N	B42	USB_3N	C42	DP3_LANE1P	D42	DP2_LANE1P
A43	USB_2P	B43	USB_3P	C43	DP3_LANE1N	D43	DP2_LANE1N
A44	USB_OC23#	B44	USB_OC01#	C44	DP3_HPD	D44	DP2_HPD
A45	USB_0N	B45	USB_1N	C45	NC	D45	NC
A46	USB_0P	B46	USB_1P	C46	DP3_LANE2P	D46	DP2_LANE2P
A47	+VBAT	B47	NC	C47	DP3_LANE2N	D47	DP2_LANE2N
A48	EXCD0_PERST#	B48	NC	C48	NC	D48	NC
A49	EXCD0_CPPE#	B49	HW_RST#	C49	DP3_LANE3P	D49	DP2_LANE3P
A50	INT_SERIRQ	B50	CB_RESET#	C50	DP3_LANE3N	D50	DP2_LANE3N
A51	GND(FIXED)	B51	GND(FIXED)	C51	NC	D51	GND(FIXED)
A52	PCIE_TX5P	B52	PCIE_RX5P	C52	PEG_RX0P	D52	PEG_TX0P
A53	PCIE_TX5N	B53	PCIE_RX5N	C53	PEG_RX0N	D53	PEG_TX0N
A54	ICH_GPIO	B54	ICH_GPO1	C54	TYPE0#	D54	PEG_LANE_RV#
A55	PCIE_TX4P	B55	PCIE_RX4P	C55	PEG_RX1P	D55	PEG_TX1P
A56	PCIE_TX4N	B56	PCIE_RX4N	C56	PEG_RX1N	D56	PEG_TX1N
A57	GND(FIXED)	B57	ICH_GPO2	C57	TYPE1#	D57	TYPE2#
A58	PCIE_TX3P	B58	PCIE_RX3P	C58	PEG_RX2P	D58	PEG_TX2P
A59	PCIE_TX3N	B59	PCIE_RX3N	C59	PEG_RX2N	D59	PEG_TX2N
A60	GND(FIXED)	B60	GND(FIXED)	C60	GND(FIXED)	D60	GND(FIXED)
A61	PCIE_TX2P	B61	PCIE_RX2P	C61	PEG_RX3P	D61	PEG_TX3P
A62	PCIE_TX2N	B62	PCIE_RX2N	C62	PEG_RX3N	D62	PEG_TX3N
A63	ICH_GPI1	B63	ICH_GPO3	C63	NC	D63	NC
A64	PCIE_TX1P	B64	PCIE_RX1P	C64	NC	D64	NC
A65	PCIE_TX1N	B65	PCIE_RX1N	C65	PEG_RX4P	D65	PEG_TX4P
A66	GND(FIXED)	B66	PCIE_WAKE#	C66	PEG_RX4N	D66	PEG_TX4N
A67	ICH_GPI2	B67	WAKE1#	C67	NC	D67	GND
A68	PCIE_TX0P	B68	PCIE_RX0P	C68	PEG_RX5P	D68	PEG_TX5P
A69	PCIE_TX0N	B69	PCIE_RX0N	C69	PEG_RX5N	D69	PEG_TX5N

Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
A70	GND(FIXED)	B70	GND(FIXED)	C70	GND(FIXED)	D70	GND(FIXED)
A71	LVDSA_DATA0P	B71	LVDSB_DATA0P	C71	PEG_RX6P	D71	PEG_TX6P
A72	LVDSA_DATA0N	B72	LVDSB_DATA0N	C72	PEG_RX6N	D72	PEG_TX6N
A73	LVDSA_DATA1P	B73	LVDSB_DATA1P	C73	GND	D73	GND
A74	LVDSA_DATA1N	B74	LVDSB_DATA1N	C74	PEG_RX7P	D74	PEG_TX7P
A75	LVDSA_DATA2P	B75	LVDSB_DATA2P	C75	PEG_RX7N	D75	PEG_TX7N
A76	LVDSA_DATA2N	B76	LVDSB_DATA2N	C76	GND	D76	GND
A77	LVDS_VDD_EN	B77	LVDSB_DATA3P	C77	NC	D77	NC
A78	LVDSA_DATA3P	B78	LVDSB_DATA3N	C78	PEG_RX8P	D78	PEG_TX8P
A79	LVDSA_DATA3N	B79	L_BKLT_EN	C79	PEG_RX8N	D79	PEG_TX8N
A80	GND(FIXED)	B80	GND(FIXED)	C80	GND(FIXED)	D80	GND(FIXED)
A81	LVDSA_CLKP	B81	LVDSB_CLKP	C81	PEG_RX9P	D81	PEG_TX9P
A82	LVDSA_CLKN	B82	LVDSB_CLKN	C82	PEG_RX9N	D82	PEG_TX9N
A83	LVDS_DDC_CLK	B83	L_BKLT_CTRL	C83	NC	D83	NC
A84	LVDS_DDC_DATA	B84	+5VSBY	C84	GND	D84	GND
A85	ICH_GPI3	B85	+5VSBY	C85	PEG_RX10P	D85	PEG_TX10P
A86	KB_RST#	B86	+5VSBY	C86	PEG_RX10N	D86	PEG_TX10N
A87	KB_A20GATE	B87	+5VSBY	C87	GND	D87	GND
A88	PCIE0_CK_REFP	B88	BIOS_DIS1#	C88	PEG_RX11P	D88	PEG_TX11P
A89	PCIE0_CK_REFN	B89	CRT_RED	C89	PEG_RX11N	D89	PEG_TX11N
A90	GND(FIXED)	B90	GND(FIXED)	C90	GND(FIXED)	D90	GND(FIXED)
A91	SPI_POWER	B91	CRT_GREEN	C91	PEG_RX12P	D91	PEG_TX12P
A92	SPI_MISO	B92	CRT_BLUE	C92	PEG_RX12N	D92	PEG_TX12N
A93	ICH_GPO0	B93	CRT_HSYNC	C93	GND	D93	GND
A94	SPI_CLK	B94	CRT_VSYNC	C94	PEG_RX13P	D94	PEG_TX13P
A95	SPI_MOSI	B95	CRT_DDC_CLK_MCH	C95	PEG_RX13N	D95	PEG_TX13N
A96	NC	B96	CRT_DDC_DATA_MCH	C96	GND	D96	GND
A97	TYPE10#	B97	SPI_CS#	C97	NC	D97	PEG_ENABLE#

Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
A98	SERO_TX	B98	NC	C98	PEG_RX14P	D98	PEG_TX14P
A99	SERO_RX	B99	NC	C99	PEG_RX14N	D99	PEG_TX14N
A100	GND(FIXED)	B100	GND(FIXED)	C100	GND(FIXED)	D100	GND(FIXED)
A101	SER1_TX	B101	FANOUT	C101	PEG_RX15P	D101	PEG_TX15P
A102	SER1_RX	B102	FANIN	C102	PEG_RX15N	D102	PEG_TX15N
A103	NC	B103	SLEEP#	C103	GND	D103	GND
A104	+12V	B104	+12V	C104	+12V	D104	+12V
A105	+12V	B105	+12V	C105	+12V	D105	+12V
A106	+12V	B106	+12V	C106	+12V	D106	+12V
A107	+12V	B107	+12V	C107	+12V	D107	+12V
A108	+12V	B108	+12V	C108	+12V	D108	+12V
A109	+12V	B109	+12V	C109	+12V	D109	+12V
A110	GND(FIXED)	B110	GND(FIXED)	C110	GND(FIXED)	D110	GND(FIXED)

Chapter 3: System Setup



The starter kit is preconfigured and assembled. No additional setup is required. However, if installation is needed, please refer to the instructions below.

Setting up the System

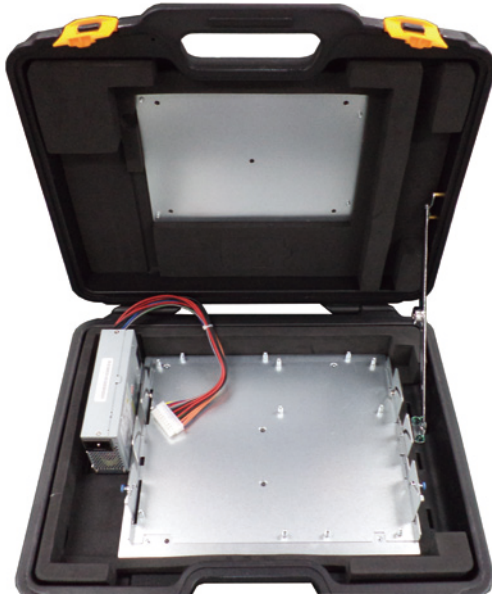


Make sure the power supply is switched off and disconnected from the power sources to prevent electric shock or system damage before installing.

1. Place the case on a stable surface and pull the yellow clasp to release the lock.



2. Open the case.

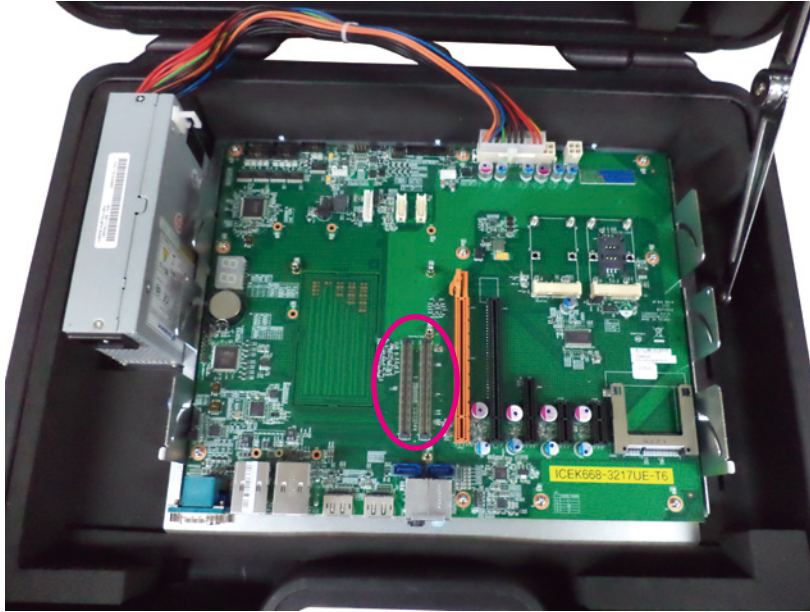


3. Align the mounting holes on the ICEB 8060 mainboard to the mounting holes inside the case.



4. Tighten screws onto the holes to secure the mainboard, and plug the ATX power supply connector to the ATX connector on the motherboard.

5. Locate the COM Express connector on the mainboard.



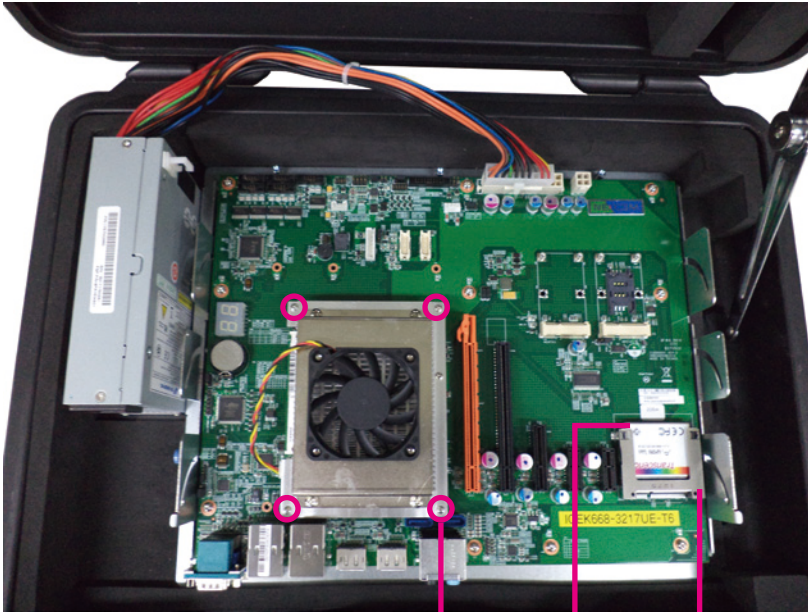
6. Install the ICES 668 module onto the COM Express connector.



Mounting holes

7. Align the mounting holes on the ICES 668 to the heatsink mounting holes on the mainboard.

8. Once the holes are aligned, place the heatsink fan on top and tighten mounting screws to secure the heatsink.



Mounting screws CFast card CFast slot

9. Insert the CFast card into the CFast slot.

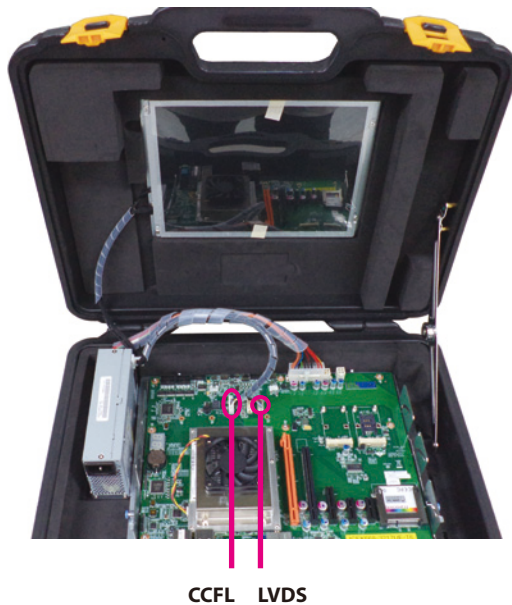
10. Align the mounting holes on the LCD panel to the mounting holes on top of the case.



Mounting holes

11. Tighten screws onto the mounting holes to secure the LCD panel.

12. Connect the LVDS and CCFL cables to the LVDS and CCFL connector on the mainboard.

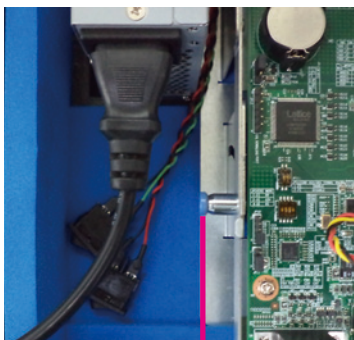


13. Plug the AC power cord to the power supply and connect the other end to a power outlet. Then switch on the system.



There is a metal plate supporting the mainboard that can be lifted up or lowered down. The instructions below illustrate the step-by-step procedures.

NOTE: Before lifting up or lowering down, make sure the two spring-nuts located on the left and right side of metal support plate are inserted/closed to the end-position as depicted in the diagram below.



Left spring-nut

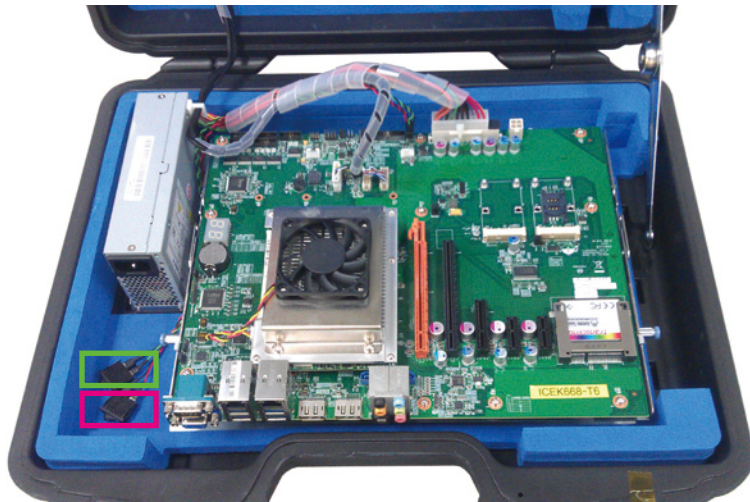


Right spring-nut

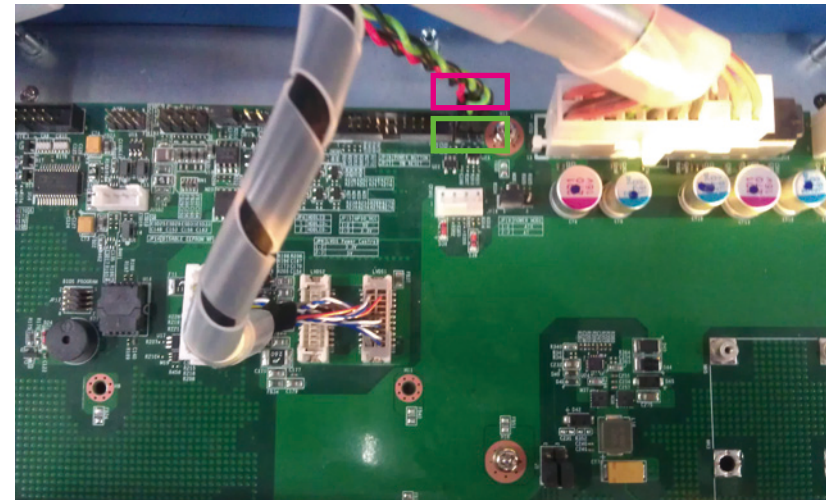
1. Hold on the left and right spring-nuts using both hands, and pull out the spring-nuts to lift up or lower down.
2. After lifting up the mainboard, make sure the two spring-nuts are inserted and closed in the end-position before plugging any connectors and I/O cards, then power on the system.
3. After lowering down the mainboard, make sure the two spring-nuts are inserted and closed to the end position before powering off the system and closing the cover.

External Soft-Power On/Off and Hardware Reset Switches

There are two special switches included inside the case to connect to JP18 and JP17 connectors for soft-power on/off and hardware reset function.



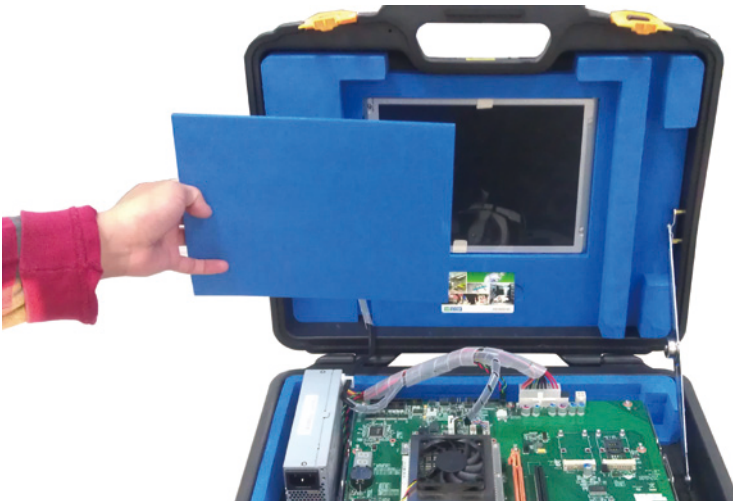
JP18: Soft-power on/off (red and black)



JP17: Hardware reset switch (green and black)

Closing the Case

1. After lowering down the mainboard, make sure the two spring-nuts are inserted and closed to the end position before powering off.
2. Make sure to place the LCD cover protector onto the LCD panel before closing the case.



Chapter 4: BIOS Setup

This chapter describes how to use the BIOS setup program for the ICEK 668-T6. The BIOS screens provided in this chapter are for reference only and may change if the BIOS is updated in the future.

To check for the latest updates and revisions, visit the NEXCOM Web site at www.nexcom.com.tw.

About BIOS Setup

The BIOS (Basic Input and Output System) Setup program is a menu driven utility that enables you to make changes to the system configuration and tailor your system to suit your individual work needs. It is a ROM-based configuration utility that displays the system's configuration status and provides you with a tool to set system parameters.

These parameters are stored in non-volatile battery-backed-up CMOS RAM that saves this information even when the power is turned off. When the system is turned back on, the system is configured with the values found in CMOS.

With easy-to-use pull down menus, you can configure such items as:

- Hard drives, diskette drives, and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power management features

The settings made in the setup program affect how the computer performs. It is important, therefore, first to try to understand all the setup options, and second, to make settings appropriate for the way you use the computer.

When to Configure the BIOS

- This program should be executed under the following conditions:
- When changing the system configuration
- When a configuration error is detected by the system and you are prompted to make changes to the setup program
- When resetting the system clock
- When redefining the communication ports to prevent any conflicts
- When making changes to the Power Management configuration
- When changing the password or making other changes to the security setup

Normally, CMOS setup is needed when the system hardware is not consistent with the information contained in the CMOS RAM, whenever the CMOS RAM has lost power, or the system features need to be changed.

Default Configuration

Most of the configuration settings are either predefined according to the Load Optimal Defaults settings which are stored in the BIOS or are automatically detected and configured without requiring any actions. There are a few settings that you may need to change depending on your system configuration.

Entering Setup

When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines. These routines perform various diagnostic checks; if an error is encountered, the error will be reported in one of two different ways:

- If the error occurs before the display device is initialized, a series of beeps will be transmitted.
- If the error occurs after the display device is initialized, the screen will display the error message.

Powering on the computer and immediately pressing allows you to enter Setup. Another way to enter Setup is to power on the computer and wait for the following message during the POST:

TO ENTER SETUP BEFORE BOOT PRESS + +

Press the key to enter Setup:


Legends

Key	Function
	Moves the highlight left or right to select a menu.
	Moves the highlight up or down between sub-menus or fields.
	Exits the BIOS Setup Utility.
	Scrolls forward through the values or options of the highlighted field.
	Scrolls backward through the values or options of the highlighted field.
	Selects a field.
	Displays General Help.
	Load previous values.
	Load optimized default values.
	Saves and exits the Setup program.
	Press <Enter> to enter the highlighted sub-menu

Scroll Bar


When a scroll bar appears to the right of the setup screen, it indicates that there are more available fields not shown on the screen. Use the up and down arrow keys to scroll through all the available fields.

Submenu

When “▶” appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press  .



BIOS Setup Utility

Once you enter the AMI BIOS Setup Utility, the Main Menu will appear on the screen. The main menu allows you to select from several setup functions and one exit. Use arrow keys to select among the items and press  to accept or enter the submenu.

Main

The Main menu is the first screen that you will see when you enter the BIOS Setup Utility.

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Main

Advanced

Chipset

Boot

Security

Save & Exit

BIOS Information

BIOS Vendor

Core Version

Compliance

Project Version

Build Date and Time

American Megatrends

4.6.5.3

UEFI 2.3; PI 1.2

I668-007

08/17/2012 11:56:07

Memory Information

Memory Frequency

Total Memory

DIMM#0

DIMM#2

1333 Mhz

2048 MB (DDR3)

Not Present

2048 MB (DDR3)

ME Firmware Information

ME FW Version

ME Firmware Mode

ME Firmware SKU

8.0.0.1351

Normal Mode

5MB

System Date

System Time

[Tue 08/21/2012]

[16:37:54]

Set the Date. Use Tab to switch between Date elements.

←→: Select Screen

↑↓: Select Item

Enter: Select

+/-: Change Opt.

F1: General Help

F2: Previous Values

F3: Optimized Defaults

F4: Save & Exit

ESC: Exit

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System Date

The date format is <day>, <month>, <date>, <year>. Day displays a day, from Monday to Sunday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1999 to 2099.

System Time

The time format is <hour>, <minute>, <second>. The time is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.



Advanced

The Advanced menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.



Setting incorrect field values may cause the system to malfunction.



ACPI Settings

This section is used to configure ACPI Settings.



Enable Hibernation

Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.

ACPI Sleep State

Select the highest ACPI sleep state the system will enter when the suspend button is pressed. The options are Suspend Disabled, S1 (CPU Stop Clock) and S3 (Suspend to RAM).



CPU Configuration

This section is used to configure the CPU.

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.

Advanced

CPU Configuration

Intel(R) Core(TM) i3-3217UE CPU @ 1.60GHz

CPU Signature306a8

Microcode Patch10

CPU Speed1500 MHZ

Processor Cores2

Intel HT TechnologySupported

Intel VT-x TechnologySupported

Intel SMX TechnologyNot Supported

64-bitSupported

Hyper-Threading[Enabled]

Intel Virtualization Technology[Disabled]

Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology). When Disabled only one thread per enabled core is enabled.

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

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Hyper-Threading

This field is used to enable or disable hyper-threading.

Intel® Virtualization Technology

Enables or disables Intel® Virtualization technology.

SATA Configuration

This section is used to configure the SATA drives.

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Advanced

SATA Controller(s)[Enabled]

SATA Mode Selection[IDE]

Serial ATA Port 0Empty

Software PreserveUnknown

Serial ATA Port 1Empty

Software PreserveUnknown

Enable or disable SATA Device.

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

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SATA Controller(s)

Enables or disables the SATA controller.



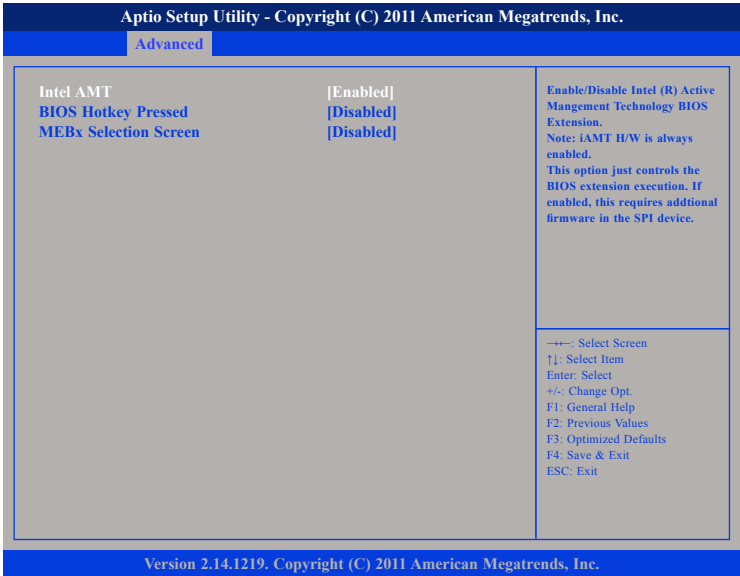
SATA Mode Selection

Configures the SATA as IDE, AHCI or RAID mode.

- IDE This option configures the Serial ATA drives as Parallel ATA physical storage device.
- RAID This option allows you to create RAID or Intel Matrix Storage configuration on Serial ATA devices.
- AHCI This option configures the Serial ATA drives to use AHCI (Advanced Host Controller Interface). AHCI allows the storage driver to enable the advanced Serial ATA features which will increase storage performance.

AMT Configuration

This section is used to configure Active Management Technology (AMT) options.



Intel® AMT

Enables or disables Intel® Active Management Technology.

BIOS Hotkey Pressed

Enables or disables BIOS hotkey press.

MEBx Selection Screen

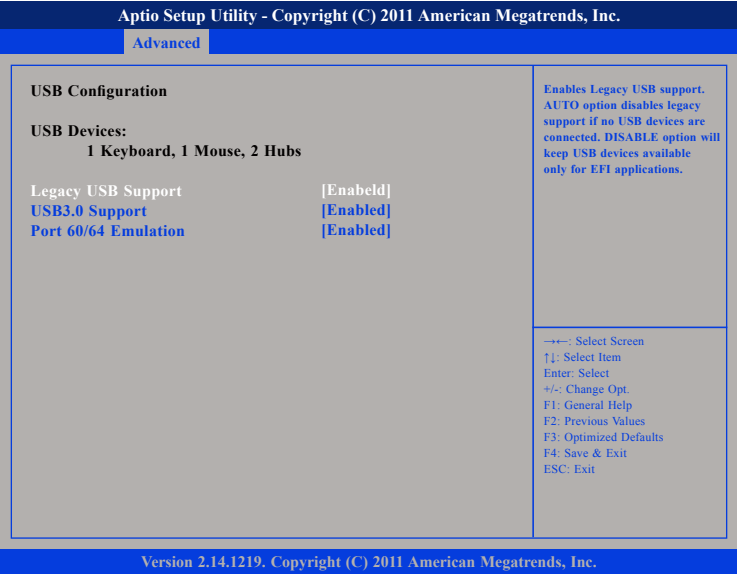
Enables or disables MEBx selection screen.





USB Configuration

This section is used to configure the USB.



Port 60/64 Emulation

Enables the 60h/64h I/O port emulation. You must enable this to fully support USB keyboard legacy for non-USB OSes.

Legacy USB Support

- Enable Enables Legacy USB.
- Auto Disables support for Legacy when no USB devices are connected.
- Disable Keeps USB devices available only for EFI applications.

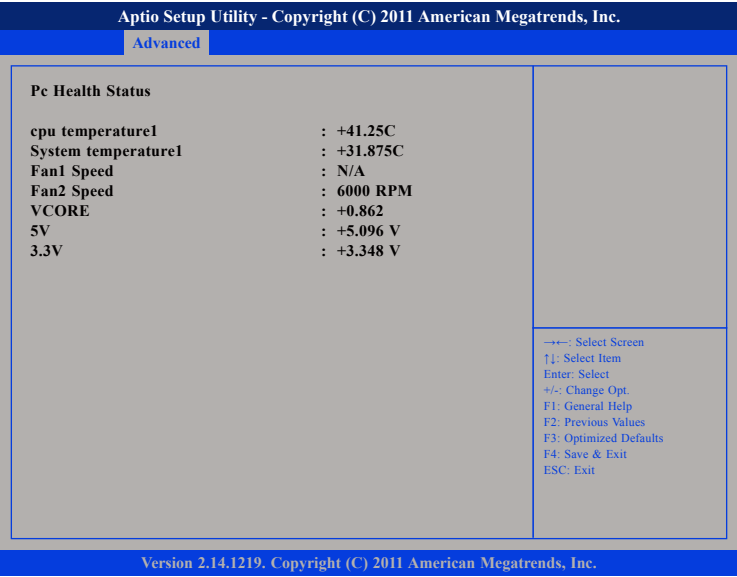
USB3.0 Support

Enables or disables USB 3.0 controller support.



H/W Monitor

This section is used to monitor hardware status such as temperature, fan speed and voltages.



CPU Temperature1

Detects and displays the current CPU temperature.

System Temperature1

Detects and displays the current system temperature.

Fan1 Speed to Fan2 Speed

Detects and displays system fan1 and fan2 speeds.

VCORE

Detects and displays the Vcore CPU voltage.

+5V

Detects and displays 5V voltage.

+3.3V

Detects and displays 3.3V voltage.

F81216 Second Super IO Configuration

This section is used to configure serial ports 0 and 1.

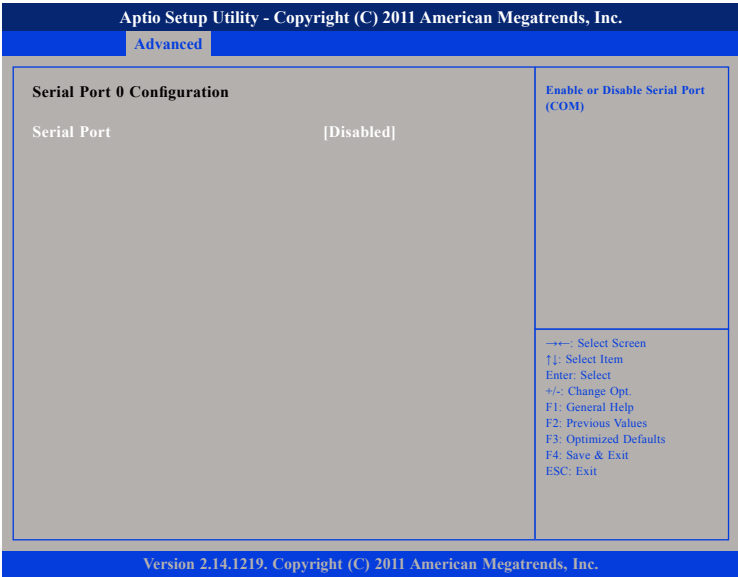


F81216 Second Super IO Chip

Displays the Super I/O chip used on the board.

Serial Port 0 Configuration

This section is used to configure serial port 0.



Serial Port

Enables or disables the serial port.



Serial Port 1 Configuration

This section is used to configure serial port 1.

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.

Advanced

Serial Port 1 Configuration

Serial Port [Disabled]

Enable or Disable Serial Port (COM)

→←: Select Screen

↑↓: Select Item

Enter: Select

+/-: Change Opt.

F1: General Help

F2: Previous Values

F3: Optimized Defaults

F4: Save & Exit

ESC: Exit

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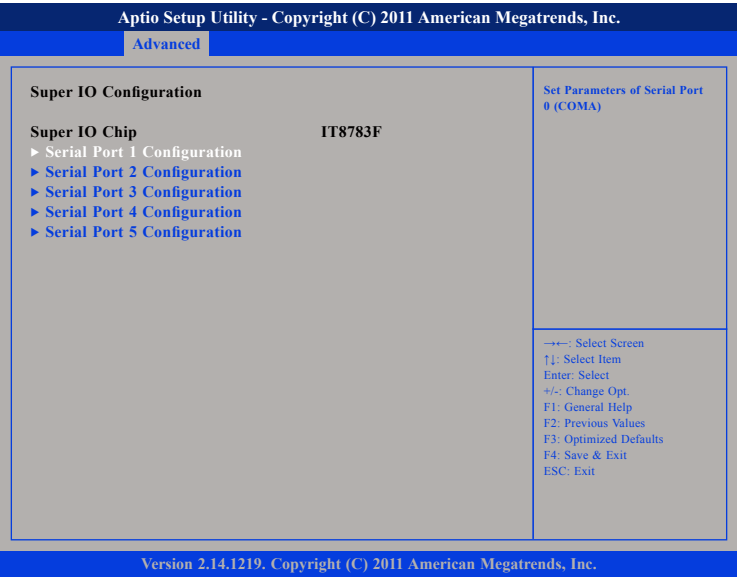
Serial Port

Enables or disables the serial port.



Super IO Configuration

This section is used to configure serial ports 1 to 5.

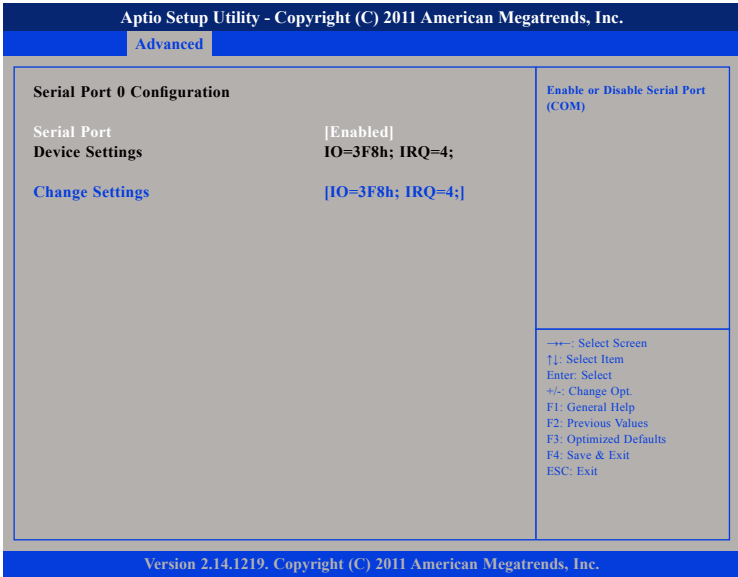


Super IO Chip

Displays the Super I/O chip used on the board.

Serial Port 0 Configuration

This section is used to configure serial port 0.



Serial Port

Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

Serial Port 1 Configuration

This section is used to configure serial port 1.

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.

Advanced

Serial Port 1 Configuration

Serial Port

[Enabled]

Device Settings

IO=2F8h; IRQ=3;

Change Settings

[IO=2F8h; IRQ=3;]

Enable or Disable Serial Port (COM)

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

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Serial Port

Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

Serial Port 2 Configuration

This section is used to configure serial port 2.

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Advanced

Serial Port 2 Configuration

Serial Port

[Enabled]

Device Settings

IO=3E8h; IRQ=10;

Change Settings

[IO=3E8h; IRQ=10;]

Enable or Disable Serial Port (COM)

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

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Serial Port

Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.



Serial Port 3 Configuration

This section is used to configure serial port 3.

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.		
Advanced		
Serial Port 3 Configuration		Enable or Disable Serial Port (COM)
Serial Port	[Enabled]	
Device Settings	IO=2E8h; IRQ=11;	
Change Settings	[IO=2E8h; IRQ=11;]	
		→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.		

Serial Port

Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

Serial Port 4 Configuration

This section is used to configure serial port 4.

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.		
Advanced		
Serial Port 4 Configuration		Enable or Disable Serial Port (COM)
Serial Port	[Enabled]	
Device Settings	IO=2F0h; IRQ=6;	
Change Settings	[IO=2F0h; IRQ=6;]	
		→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.		

Serial Port

Enables or disables the serial port.

Change Settings

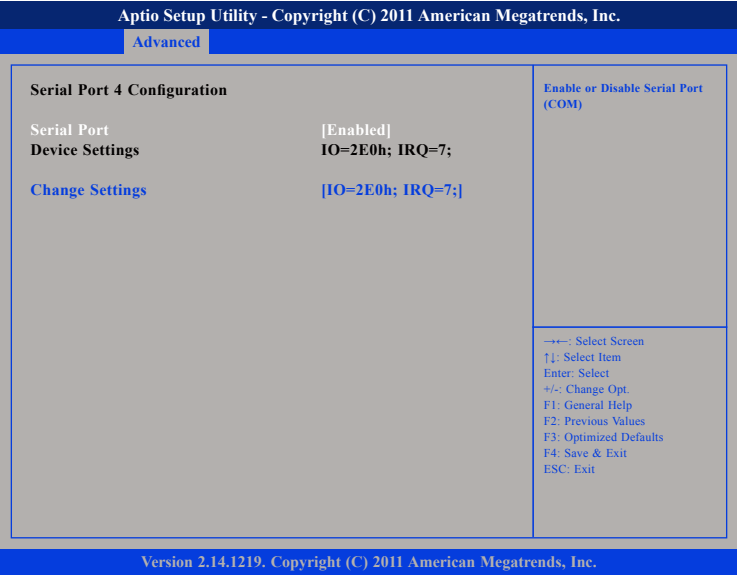
Selects an optimal setting for the Super IO device.





Serial Port 5 Configuration

This section is used to configure serial port 5.



Serial Port

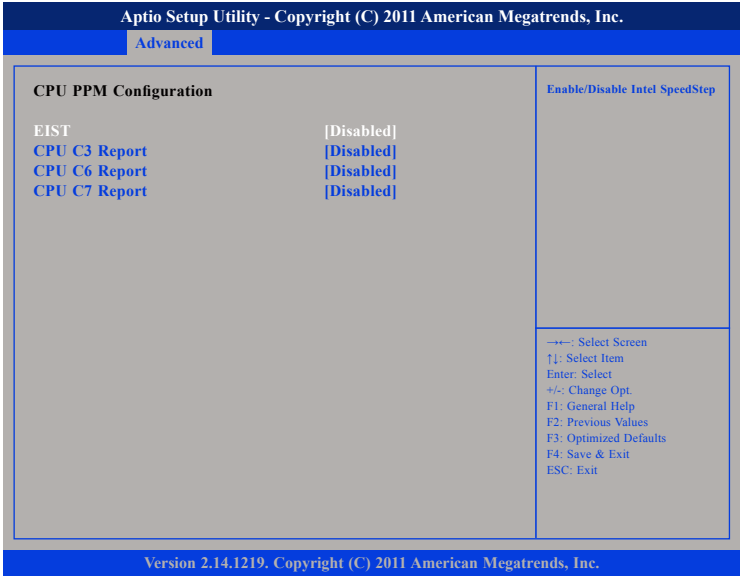
Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

CPU PPM Configuration

This section is used to configure the Processor Power Management (PPM) configuration.



EIST

Enables or disables Intel® SpeedStep.

CPU C3 Report

Enables or disables C3 report to the operating system.

CPU C6 Report

Enables or disables C6 report to the operating system.

CPU C7 Report

Enables or disables C7 report to the operating system.



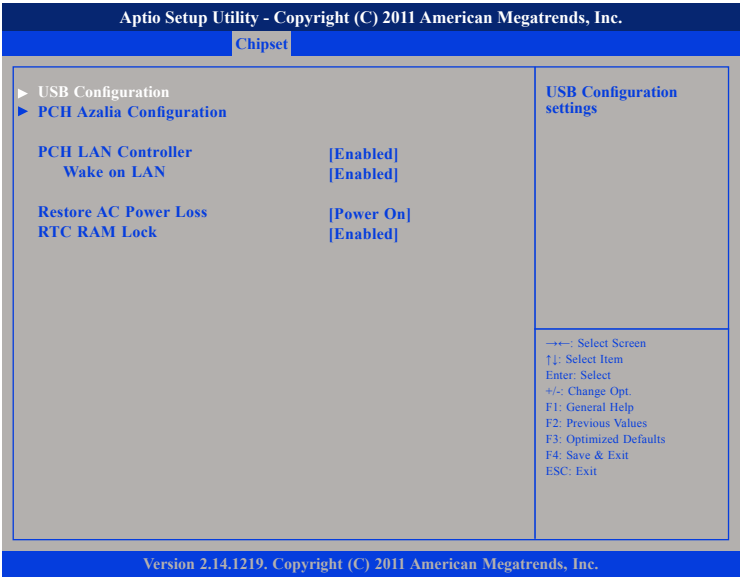
Chipset

This section is used to configure the system based on the specific features of the chipset.



Setting incorrect field values may cause the system to malfunction.

PCH-IO Configuration



PCH LAN Controller

Enables or disables onboard NIC.

Wake on LAN

Enables or disables integrated LAN to wake the system.

Restore AC Power Loss

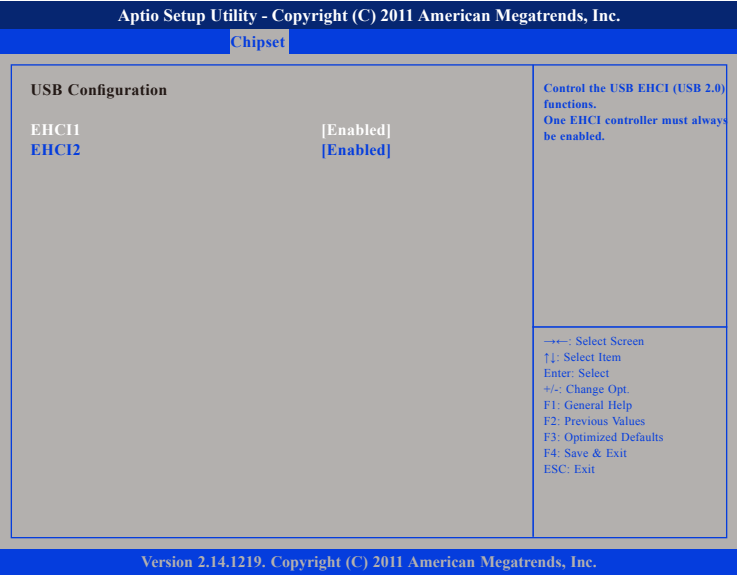
Select AC power state when power is re-applied after a power failure.

RTC RAM Lock

Enables or disables RTC RAM lock.



USB Configuration



EHC11 and EHC12

Enables or disables the Enhanced Host Controller Interface (USB 2.0), one EHCI controller must always be enabled.

PCH Azalia Configuration



Azalia

Control Detection of the Azalia device.

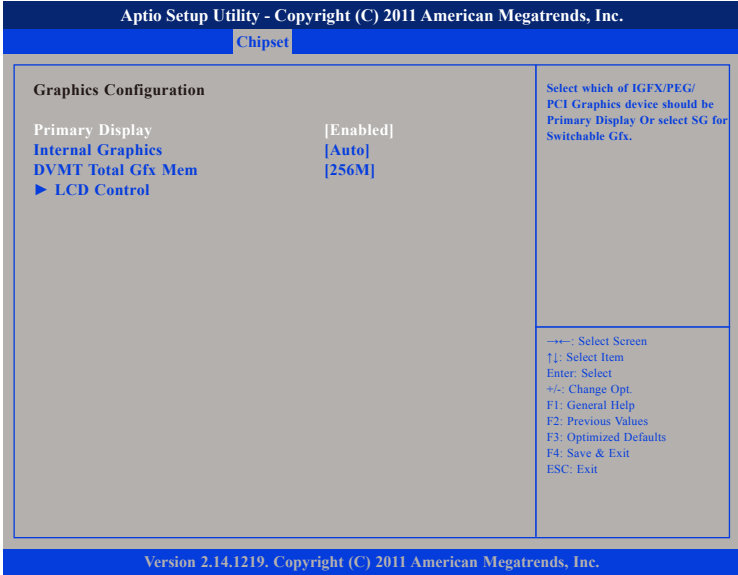
- | | |
|----------|--|
| Disabled | Azalia will be unconditionally disabled. |
| Enabled | Azalia will be unconditionally disabled. |



System Agent (SA) Configuration



Graphics Configuration



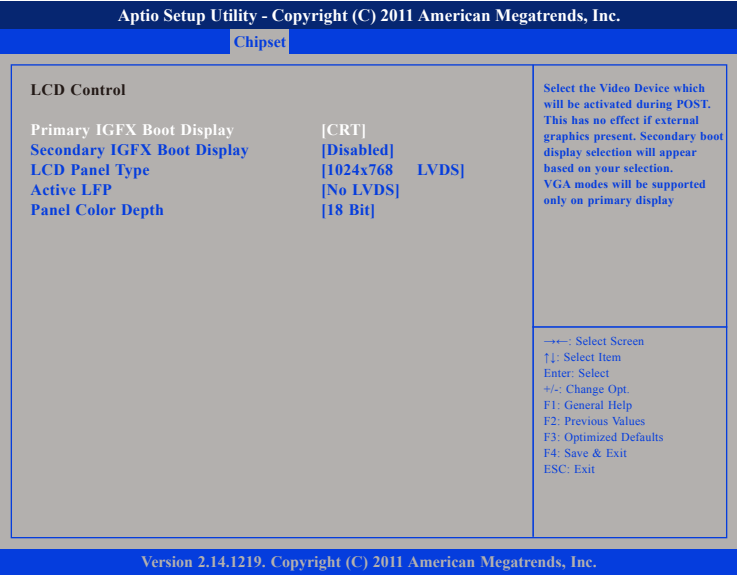
Primary Display
Select which of IGFX/PEG/PCI graphics device should be primary display or select SG for switchable Gfx.

Internal Graphics
Keep IGD enabled based on the setup options.

DVMT Total Gfx Mem
Select DVMT5.0 Total Graphic Memory size used by the Internal Graphics Device.



LCD Control



Primary IGFX Boot Display

Select the video device which will be activated during POST. Has no effect if external graphics is present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display.

LCD Panel Type

Select the LCD panel used by the internal graphics device by selecting the appropriate setup item.

Active LFP

Select the Active LFP configuration.

- No LVDS VBIOS does not enable LVDS.
- Int-LVDS VBIOS enables LVDS driver by Integrated encoder.

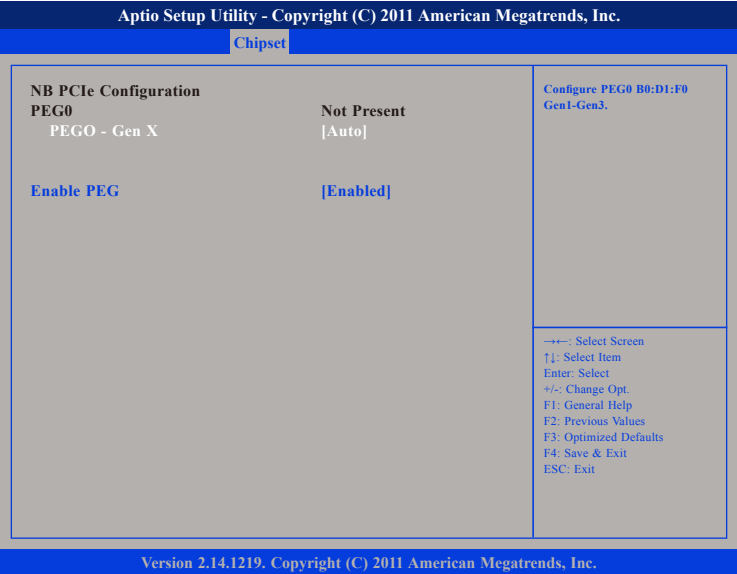
Panel Color Depth

Select the LFP Panel Color Depth.



NB PCIe Configuration

This section is used to configure Northbridge PCI Express settings.



PEG0 - Gen X

Configure PEG0 B0:D1:F0 Gen1-Gen3.

Enable PEG

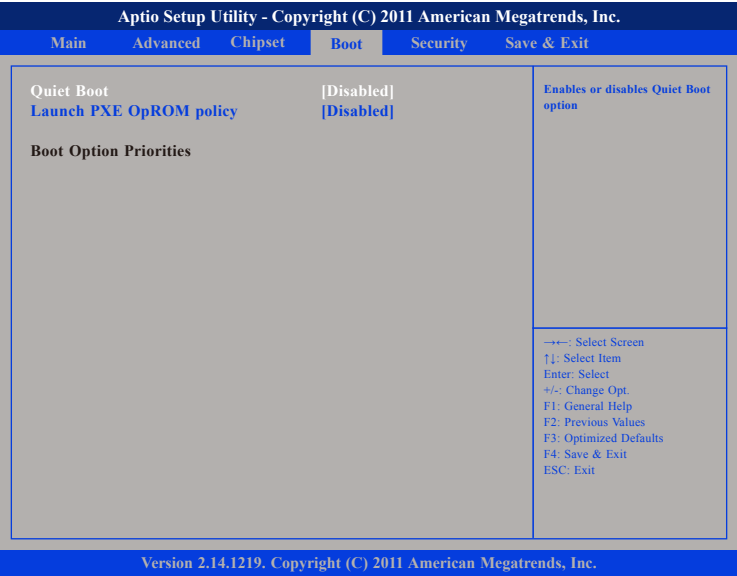
Enables or disables the PEG slot.





Boot

This section is used to configure the boot features.



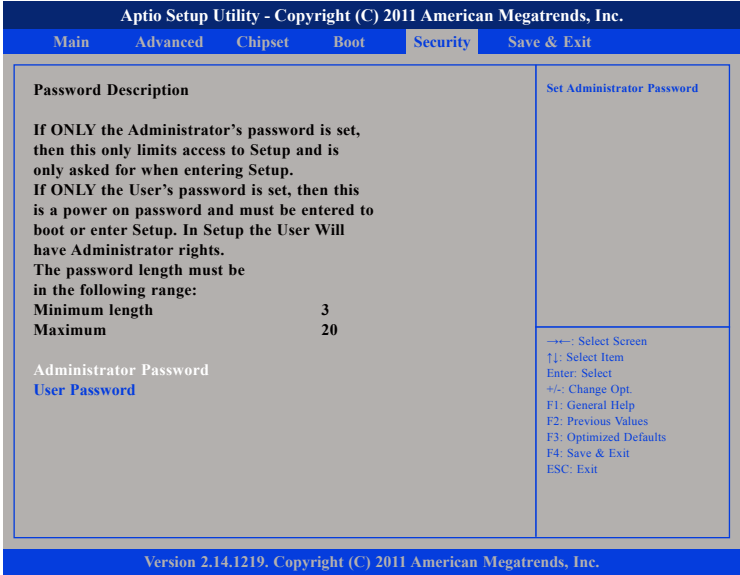
Quiet Boot

- Enabled Displays OEM logo instead of the POST messages.
- Disabled Displays normal POST messages.

Launch PXE OpROM Policy

Controls the execution of UEFI and legacy PXE OpROM.

Security



Administrator Password

Select this to reconfigure the administrator's password.

User Password

Select this to reconfigure the user's password.



Save & Exit



Save Changes and Reset

To save the changes and reset, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Discard Changes and Reset

To exit the Setup utility without saving the changes, select this field then press <Enter>. You may be prompted to confirm again before exiting.

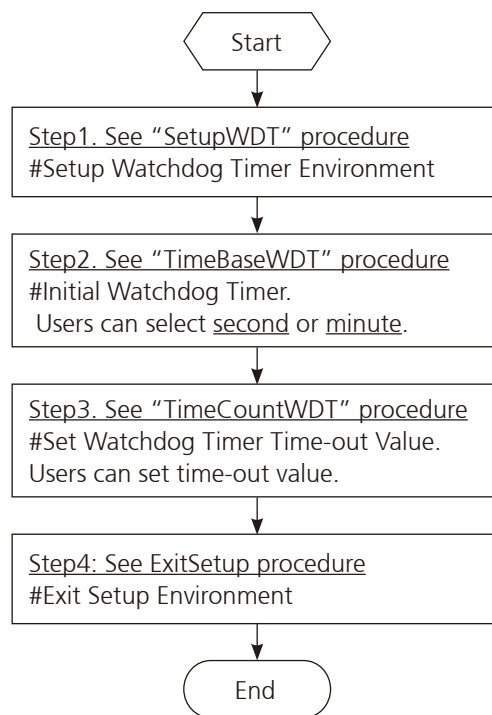
Load Optimized Defaults

To restore the BIOS to default settings, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Appendix A: Watchdog Timer

WDT Programming Guide

ICES 668 Watch Dog Function Configuration Sequence Description:



```

=====
SetupWDT      PROC
    mov     dx, 2eh
    mov     al, 087h
    out     dx,al
    nop
    nop
    out     dx,al          ;Write operations to special address
port (2E) for entering MB PnP Mode.

    mov     al, 07h
    out     2eh,al
    mov     al, 08h      ;Select logical device for Watch Dog.
    out     2fh,al
    ret
SetupWDT      ENDP

```

```

=====
TimeBaseWDT    PROC
    mov     al,0F5h
    out     2eh,al
    mov     al, 04h      ; Here!! set 04h for second, set 0Ch for
minute(WDT output through WDTO)
    out     2fh,al
    ret
TimeBaseWDT    ENDP

```

```

=====
TimeCountWDT  PROC
    mov     al,0F6h      ;WDT Time-out register.
    out     2eh,al

```

```

    mov     al, 03h      ;Here!! Set count 3.
    out     2fh,al
    ret
TimeCountWDT  ENDP

```

```

=====
ExitSetup      PROC
    mov     al, 0AAh
    out     2eh,al
    ret
ExitSetup      ENDP
=====

```

Appendix B: GPI/O Programming Guide

GPI/O (General Purpose Input/Output) pins are provided for custom system design. This appendix provides definitions and its default setting for the ten GPI/O pins in the ICES 668 series. The pin definition is shown in the following table:

Pin No.	GPI/O mode	PowerOn Default	Address	Pin No.	GPI/O mode	PowerOn Default	Address
1	VCC	-	-	2	GND	-	-
3	GPI0	Low	548h (Bit6)	4	GPO0	High	548h (Bit7)
5	GPI1	Low	50Eh (Bit1)	6	GPO1	High	50Ch (Bit7)
7	GPI2	Low	548h (Bit4)	8	GPO2	High	538h (Bit6)
9	GPI3	Low	548h (Bit5)	10	GPO3	High	538h (Bit7)

Control the GPO pin (3/5/7/9) level from I/O port 548h, 50Eh, 548h, 548h bit (6/1/4/5).
The bit is Set/Clear indicated output High/Low

GPIO programming sample code

```
#define GPIO_PORT      0x50E
#define GPIO_PORT3     0x548
#define GPO0           (0x01 << 6)
#define GPO1           (0x01 << 1)
#define GPO2           (0x01 << 4)
#define GPO3           (0x01 << 5)

#define GPO0_HI         outportb(GPIO_PORT3, GPO0)
#define GPO0_LO         outportb(GPIO_PORT3, 0x00)
#define GPO1_HI         outportb(GPIO_PORT, GPO1)
#define GPO1_LO         outportb(GPIO_PORT, 0x00)
#define GPO2_HI         outportb(GPIO_PORT3, GPO2)
#define GPO2_LO         outportb(GPIO_PORT3, 0x00)
#define GPO3_HI         outportb(GPIO_PORT3, GPO3)
#define GPO3_LO         outportb(GPIO_PORT3, 0x00)
void main(void)
{
    GPO0_HI;
    GPO1_LO;
    GPO2_HI;
    GPO3_LO;
```